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W. DOWNING BIDEN

RULES, FORMULÆ, AND TABLES,

FOR THE

VALUATION OF ESTATES,

IN POSSESSION OR IN REVERSION;

WITH

NEW RULES AND TABLES

FOR ASCERTAINING THE

CORRECT MARKET VALUE OR FAIR PRICE

TO BE GIVEN FOR

ANNUITIES, REVERSIONS, ADVOWSONS, AND NEXT PRESENTATIONS,

IN ORDER TO SECURE TO THE PURCHASER

A CERTAIN RATE OF INTEREST ON EQUITABLE TERMS.

BY

W. DOWNING BIDEN, F.G.S.,

ACTUARY, ETC.

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PREFATORY NOTES.

THE Formulæ and Tables comprised in this volume were investigated and computed for private use; and, for purposes requiring considerable accuracy, many of the Tables were calculated to a degree of nicety not requisite in ordinary practice.

They are now published in a condensed and abridged form, as a contribution towards a more general, accurate, and practical acquaintance with the value and power of money when employed as an investment.

Many of the Formulæ and Rules are contained and demonstrated in larger and more expensive works, but some of them are believed to be new; and, as these have been investigated to meet the requirements and test the results of daily practice, it is hoped they may be found useful by many who have hitherto been content with rough approximations or shrewd guesses, but who may wish to be more accurate in judgment, or able to explain their views satisfactorily and to give a sound reason for their opinion.

The Tables, from p. 12 to p. 29, containing the values of annuities, reversions, and fines, the amounts of capital sums and annuities accumulated, and the annual sinking fund required to secure a capital sum at a future time, at various rates of interest and for periods of from 1 to 100 years, were calculated with accuracy to the 10th or 12th place of decimals. They were then compared, as far as practicable, with Smart's Tables; and, where differences were noted, were twice re-calculated, to ensure correctness. In this process several errors have been detected in Smart's values.

The 3 per cent. Tables, throughout, are given with greater fulness than others—because money, invested in real securities for many years, is found to realize that rate of interest:—it is, in fact, the normal rate of interest in this country at the present day; and it is considered that it should be taken as the basis of most, if not all, monetary transactions. Higher rates are, however, frequently employed by valuers—sometimes to cover want of care in reducing gross to nett incomes, and thus, by a ready but reckless method, to bring results within the domain of experience; and sometimes in order to satisfy the desire of purchasers or investors to secure a larger interest for their capital than can be derived from funded property. Tables calculated for higher current rates are, therefore, given; but, because risk is increased, security diminished, and accuracy is very problematical at rates higher than the current rate of the time, these Tables are given to a less degree of nicety and less fully.

To meet the requirements of those who wish for high rates of interest as well as security, Tables are given showing the price at which an annuity or rent must be purchased to secure to the purchaser a given rate of interest, and leave an annual surplus sufficient, if invested at 3 per cent., to replace the purchase-money by the time the annuity ceases. A rule for this purpose, applicable to the purchase of annuities certain, was in use many years ago, and will be found in early editions of *Inwood's Tables*; and one of more elegant form, and more simple in application, with Tables calculated by its means, was given by Mr. Hardy in the year 1850, in a communication to the Institute of Actuaries. The formula now given, $\frac{1}{\sigma_n + \rho}$, is reduced to the utmost simplicity; and, by the help of the values of σ_n, from p. 12 onwards, Mr. Hardy's Tables, as reprinted by Mr. Willich, may readily be corrected and extended.

The Life Tables in this book are chiefly based on the Carlisle Table of

Mortality, because, although open to some objections, it has been, of late years, very extensively adopted by valuers and Assurance Offices; and, differing but slightly in its general results from other and more recent Tables of Mortality, it has the sanction of use and the prestige of public favour. But since, by a recent Act of Parliament, 17 & 18 Vict., c. 116, the English Life Tables have been made the standard for certain purposes, a few Tables calculated on the basis of the English Life Tables for males, and on those for females, more recently published, are added, that, by comparing them with the Carlisle Tables, the valuer may make such allowance as will bring his estimate within the meaning of the Act, which provides that, "In all computations in any way dependent on the duration of lives, the expectation of life shall not be calculated according to the Tables commonly known as the Northampton Tables, nor upon Tables less favourable to the expectation of life than the Life Tables which are appended to the Twelfth Annual Report of the Registrar-General of Births, Deaths, and Marriages in England, nor than any Tables which may be, from time to time, issued by the same authority."

The Conversion Tables at p. 96, &c., by means of which the value of an assurance of £1 on death may be immediately deduced from any given Table of annuities, at rates from 3 to 10 per cent., are entirely new; and they are applicable for the purpose of ascertaining at a glance the price that must be given for a reversion in order to secure a given rate of interest, although contingencies may be involved (*see* Formulæ, p. 91).

The ordinarily tabulated values of reversions are found on the assumption of a current rate of interest at 3, 4, 5, 6, and other rates per cent.—*i.e.*, on the supposition that the party purchasing a reversion can also purchase an annuity at the same rate, or is willing to place himself in the position of granting one at that rate. Thus, the value of the reversion to £1 on the death of a party aged 50 is given, at 6 per cent., as ·3416; which value is arrived at by deducting from the present value of £1 due a year hence, at 6 per cent., the cost of an annuity of the discount (·0566) for the life calculated at the same rate. If an annuity could be purchased at such a price, the tabular value would correctly represent the marketable value of the reversion; but, as annuities cannot be bought at rates materially differing from 3 per cent., these Tables are unsafe as well as unsound guides.

A new Table has, therefore, been calculated (as given at p. 93), showing the worth of a reversion falling due on the death of any assigned life, and allowing the purchaser to secure himself by an annuity at 3 per cent. to cover the interest on his outlay.

Additional formulæ will also be found (p. 91) by the use of which vendors and purchasers of reversions, whether certain or contingent, may estimate the nett values of such properties, after making the necessary allowance for assurance against risk.

It has been usual to calculate the value of a contingent reversion, as well as of one dependent on life, by the use of the old 5 or 6 per Cent. Tables, deducting a sum by way of margin for risk; but a purchaser securing himself by the use of the new tables and formulæ, may now fairly be expected to be satisfied with a rate of interest nearly approximating to the current rate, and can have no excuse for making any further deduction, except for necessary expenses.

The whole of the Tables are calculated to a unitary basis, and expressed decimally, as no mode of calculation is better adapted for general use and no other is so simple.

In the mass of figures contained in this book, it is not expected that, even with the extraordinary care bestowed upon the work by the Printer, errors have been altogether avoided. If anyone who uses the Tables will kindly point out such errors as he may observe, he will confer a favour on the Author.

9, Lansdowne Cottages,
Lower Road, Islington.
1861.

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RULES AND FORMULÆ

FOR THE

VALUATION

OF

ANNUITIES, REVERSIONS,

RECURRING PAYMENTS,

LEASES,

&c. &c.,

DEPENDENT ON

TERMS OF CERTAIN DURATION.

RULES AND FORMULÆ.

1. To find the Amount of £1 in a given time, by Compound Interest.

Rule.—Add to unity the interest payable upon it at the first interval of time at which such interest is convertible, and involve the sum to the power whose index is the number of such intervals in the given period.

Formula.—n being an integral number of years, and interest convertible yearly—

1*a*. $$(1+r)^n, \text{ or } R^n;$$

Or, by logarithms, $n \times \log. R = \log.$ of the amount.

If interest be convertible m times a year, at the rate $\frac{r}{m}$,

1*b*. $$\left(1+\frac{r}{m}\right)^{mn}.$$

The true rate of interest payable in the mth part of a year (supposing money to be convertible at every such mth part), in order to realise

1*c*. a total interest of r per £ per annum, is $\sqrt[m]{1+r}$, or $R^{\frac{1}{m}}$.

And the amount of £1 in any number n of such mth parts of a year is,

1*d*. at such rate, $\sqrt[m]{(1+r)^n}$, or $R^{\frac{n}{m}}$.

If interest could be converted momently, the amount of £1 in one year, at the rate of $\frac{r}{m}$ per moment, would be e^r, e being the base of the Napierian logarithms, or 2·71828182846, and its logarithm

1*e*. $=$·43429448190325, &c.

1*f*. And the amount of £1 in n years at that rate would be e^{rn}.

---

2. To find the Amount of £1 per annum invested and accumulated by Compound Interest for a given time.

Rule.—From the amount of £1 in the given time deduct 1, and divide the remainder by the rate of interest per £.

Formula.—M_n being the sign of such amount—

2*a*. $$M_n = \frac{R^n - 1}{r}.$$

If interest be convertible m times in a year, and the annuity and interest be received and invested at m equal intervals of time, the amount will be—

2*b*. $$= \frac{(1+\frac{r}{m})^{mn} - 1}{\frac{r}{m}}.$$

---

3. To find the Amount of an Annuity increasing yearly by equal increments.

Rule.—The amount of the constant portion is found by Rule 2. The amount of the increasing portion is found thus:—From the amount of an annuity of £1 for the time, deduct the number of years; multiply by the increment and divide by the rate of interest per £.

Formula.—A being the first year's payment, $A+h$, $A+2h$, $A+3h$, &c., the successive payments, the amount at the end of n years is—

3*a*. $$A.M_n + \frac{h}{r}(M_n - n).$$

If the successive payments of the annuity be 1, 2, 3, 4, &c., to n, the amount is—

3*b*. $$\frac{R.M_n - n}{r}.$$

4. To find the Amount of a Decreasing Annuity.

Rule.—From the amount to which the annuity would accumulate if constant, deduct the amount of the annual decrement found by Rule 3.

Formula.

4a. $$A.M_n - \frac{h}{r}(M_n - n).$$

If the annuity decrease to extinction (*i.e.*, till the last payment is h), the formula becomes—

4b. $$\frac{h}{r}(n.R^n - M_n).$$

If the annual decrement be 1, and the number of annual payments n, the formula becomes—

4c. $$\frac{nR^n - M_n}{r}.$$

---

5. To find the Present Value of £1 due at any future time, Interest being Compound.

Rule.—Divide 1 by the amount of £1 in the time.

Formula.—v^n being the symbol of this value—

5a. $v^n = \frac{1}{R^n}$, otherwise written R^{-n}. $\log. v^n = n \times \text{colog. } R.$

Note.—If interest be convertible m times in a year, at a rate equivalent to r per annum—

5b. The present value of £1 due $^1/_m$th part of a year hence is $\sqrt[m]{v}$ or $v^{\frac{1}{m}}$.

5c. The present value of £1 due $^n/_m$ths of a year hence would be $\sqrt[m]{v^n}$ or $v^{\frac{n}{m}}$.

If interest be convertible m times in a year at the rate $\frac{r}{m}$,

5d. The present value of £1 due a year hence is $\frac{1}{(1+\frac{r}{m})^m}$.

5e. The present value of £1 due $^n/_m$ths of a year hence, $\frac{1}{(1+\frac{r}{m})^n}$.

The present value of £1 due n years hence, if interest be converted momently at the nominal rate r per annum (e representing the base
5f. of the Napierian logarithms), is $1 \div e^{rn}$.

---

6. To find the Present Value of £1 payable at intervals of n years.

Rule.—Divide unity by one less than the amount of £1 in n years; or divide the sinking fund (σ_n) that will amount to £1 in n years by the interest of £1 for 1 year.

Formula.—If the first £1 is due n years hence, f_n being the symbol of this value—

6a, b. $$f_n = \frac{1}{R^n - 1} \text{ or } \frac{\sigma_n}{r}.$$

If the first £1 is due now, the symbol of the value is F_n—

6c, d. $$F_n = \frac{R^n}{R^n - 1} \text{ or } 1 + f_n.$$

If the first £1 is due in t years, the present value is

6e. $$\frac{R^{n-t}}{R^n - 1}.$$

7. To find the Present Value of an Annuity of £1 for n years.

Rule.—From 1 deduct the present value of £1 due n years hence, and divide by the rate of interest per £.

Formula.—a_n being the present value of an annuity of £1 for n years—

7a. $$a_n = \frac{1 - v^n}{r}.$$

If interest be convertible m times every year, at the rate $\frac{r}{m}$, or nominally at the rate r, the formula becomes—

7b. $$\frac{1 - \frac{1}{(1+\frac{r}{m})^{mn}}}{r}.$$

If the annuity be received by q instalments every year, and interest be convertible m times a year at the rate $\frac{r}{m}$ at each conversion, the formula becomes—

7c, d. $$\frac{1}{q}\left\{\frac{1 - \frac{1}{(1+\frac{r}{m})^{mn}}}{\sqrt[q]{(1+\frac{r}{m})^{mn}} - 1}\right\};$$

or, if $1 + \frac{r}{m}$ be put $= k$, it is $\frac{1}{q}\left\{\frac{1 - \frac{1}{k^{mn}}}{k^{\frac{mn}{q}} - 1}\right\}$.

---

8. To find the Present Value of a Deferred Annuity; for n years after d years.

Rule.—From the present value of an annuity for the whole term $n+d$, deduct the present value of an annuity for the period of deferment d; or, from the present value of £1 due in d years, deduct the value of £1 due in $d+n$ years, and divide by the rate of interest per £.

Formula.—8a, 8b. $$a_{n+d} - a_d, \quad \text{or} \quad \frac{v^d - v^{d+n}}{r}.$$

---

9. To find the Present Value of a Perpetuity (i.e., of £1 per annum for ever), the first £1 being due 1 year hence.

Rule.—Divide 1 by the rate of interest per £.

Formula.—p being the symbol of such a perpetuity—

9a. $$p = \frac{1}{r}.$$

Note.—The value of a perpetuity due—*i.e.*, of one whose first payment is to be immediate (the symbol being P), is

9b. $$\mathrm{P} = 1 + p, \quad \text{or} \quad \frac{\mathrm{R}}{r}.$$

If the perpetuity be deferred—*i.e.*, if the first payment is to be $n+1$ years hence, it is now worth—

9c. $$\frac{v^n}{r}.$$

10. To find the Present Value of an Annuity increasing annually by the addition of a certain sum h.

Rule (fundamental).—If the annuity be 0 the first year, then successively h, $2h$, $3h$, &c., till it becomes $(n-1)h$—*i.e.*, lasting n years. From the present value of an annuity of £1 for n years, deduct n times the present value of £1 due n years hence; multiply by the annual increment h, and divide by the rate of interest per £.

Rule (general).—When the annuity commences with an initial sum:—To the value of an annuity of the constant, or first sum to be received, add the value of the incremental annuity found as above.

Formula.—If the annuity be 0, h, $2h$, $3h$, &c., to $(n-1)h$, the present value is

10*a*. $$\frac{h}{r}(a_n - n.v^n).$$

If the increment h be equal to 1, or the annuity be 0, 1, 2, 3, 4, &c., to n terms, it is worth

10*b*. $$\frac{a_n - n.v^n}{r}.$$

If the annuity be 0, 1, 2, 3, &c., to n, and remain at n for ever, it is worth

10*c*. $$a_n \div r.$$

GENERALLY—An annuity whose successive payments are c, $c+h$, $c+2h$, &c., to $c+(n-1)h$, is worth

10*d*. $$c.a_n + \frac{h}{r}(a_n - n.v^n).$$

If, after arriving at $c+nh$, it remain constant till the mth year from the present time, it is worth

10*e*. $$c.a_m + \frac{h}{r}(a_n - n.v^m).$$

If, after arriving at $c+nh$, it remain constant for ever, it is worth

10*f*. $$\frac{c+h.a_n}{r}.$$

Example.—Required the present value of a ground rent of a peppercorn the 1st year, £5 next year, £10 the third year, and £15 every subsequent year, for the remainder of a term of 99 years, to pay the purchaser 8 per cent.

Here $c=0$, $h=5$, $n=3$, $m=99$; and formula 10*e* becomes $\frac{5}{\cdot 08}(a_3 - 3v^{99})$.

At 8 per cent., a_3	=	2·577097
$v^{99} = \cdot 00049096$,		
Which, multiplied by 3	=	·001473
$a_3 - 3v^{99}$	=	2·575624
Multiply by 5		5
Divide by		·08)12·878120
		£160·9765

11. To find the Present Value of Decreasing Annuities.

Rule.—If the first payment be nh, and the annual decrement h, and the annuity be continued to extinction—From n deduct the present value of an annuity for n years, multiply by h and divide by the rate of interest per £.

Formula 11*a*. $$\frac{h}{r}(n - a_n).$$

Rule.—If the first payment be nh, and the annual decrement h, for c years only, or till the last payment is $(n-c)h$—From n deduct the present value of an annuity of £1 for c years, and $(n-c)$ times the present value of £1 due $c+1$ years hence; multiply by the annual decrement, and divide by r.

Formula 11*b*. $$\frac{h}{r}\left\{n - a_c - (n-c)v^{c+1}\right\}.$$

Rule.—If the first payment be nh, the annual decrement h, until the payment become dh, and then remain dh for ever—From n deduct the present value of an annuity of £1 for $n-d$ years; multiply by h and divide by r.

Formula 11*c*. $$\frac{h}{r}(n - a_{n-d}).$$

Rule.—If the last-named annuity continue at dh till the cth year from now, and then cease, find the value as above (Rule 11*c*), and deduct therefrom the sum represented by $hdv^c \div r$.

Formula 11*d*. $$\frac{h}{r}(n - a_{n-d} - dv^c).$$

---

12. To find the Sinking Fund, or sum to be laid by and invested at the end of every year for n years, to produce £1 at the end of that period.

Rule.—Divide the rate of interest per £1 by one less than the amount of £1 in the time.

Formula.—σ_n being the symbol of such sinking fund—

12*a*. $$\sigma_n = \frac{r}{R_n - 1}, \text{ or } \frac{1}{M_n}.$$

Note.—The annual premium or sum to be invested at the beginning of each year for n years, to secure £1 at the end of n years, is

12*b*. $$\sigma_n \div R, \text{ or } \frac{d}{R^n - 1}, \text{ or } \frac{v}{M_n}.$$

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13. To find the Present Value of an Annuity for a term of years, so that the Purchaser may expend out of the Annuity a sum equal to the interest of his purchase-money at one rate, and reinstate his capital at the end of the term by annually investing the remainder of the Annuity at another rate.

Rule.—Divide the annuity or annual income by the sinking fund required at the investing rate to secure £1 at the end of the term plus the rate of interest per £1 required for use.

Formula.—σ_n being the sinking fund at the investing rate to secure £1 at the end of the term, r_1 the rate of interest required for use, and A the annuity to be purchased—

13. $$\frac{A}{\sigma_n + r_1}.$$

Symbols and their Interpretation.

r The interest on £1 for one year (or other integral period).

n An integral number of years.

R The ratio of accumulation :—the amount of £1 with one year's interest $= 1 + r$.

R^n The amount of £1 in n years (compound interest).

v The present value of £1 due 1 year hence $= R^{-1}$ or $\frac{1}{R}$.

v^n The present value of £1 due n years hence $= R^{-n}$ or $\frac{1}{R^n}$.

p The present value of a perpetuity of £1 per annum, the first payment of which is due 1 year hence . . $= \frac{1}{r}$.

P The present value of a perpetuity due, the first payment of which is due now . . . . . $= 1 + p = \frac{R}{r}$.

M_n The amount of an annuity of £1 for n years. $\frac{R^n - 1}{r}$

a_n The present value of an annuity of £1 for n years. $\frac{1 - v^n}{r}$

${}_np$ The present value of a perpetuity deferred n years. $\frac{v^n}{r}$

σ_n The sinking fund, or sum to be invested at the end of each year, for n years, to realize £1. $\frac{r}{R^n - 1}$

π_n The annual premium to be invested at the beginning of each year, for n years, to realize £1 n years hence. $v . \sigma_n$

f_n The present value of a perpetually recurring fine of £1, due once in every n years; the first due n years hence. $\frac{\sigma_n}{r}$ or $\frac{1}{R^n - 1}$

d The discount of £1 for 1 year, or the difference between £1 and the present value of £1 due a year hence $= rv$, or $\frac{r}{R}$ or $1 - v$

Table of Comparative Values.

In hand.	Due n years hence.	Annually for n years.	Annually for ever.	Once in n years first n years hence.	Annually after n years.
1	R^n	$\sigma_n + r$	r	$R^n - 1$	$R^{n+1} - R^n$
v^n	1	σ_n	rv^n	$1 - v^n$	r
a_n	M_n	1	$1 - v^n$	$M_n - a_n$	$R^n - 1$
p	$M_n + p$ or $R^n \div r$	$1 + f_n$	1	M_n	R^n
f_n	F_n	$F_n \sigma_n$	σ_n	1	$\sigma_n + r$
${}_np$	p	f_n	v^n	a_n	1

TABLES OF VALUES

OF

ANNUITIES, REVERSIONS,

&c. &c.,

DEPENDING ON

TERMS OF CERTAIN DURATION.

NOTE.—In these Tables the last figure of the decimal is always the nearest to the correct value; but when it is slightly in excess of the true value, it is followed by a point, as in the following example:—at 3 per cent.

The present value of £1 due one year hence is ·9708 7378 6, &c.
This value is tabulated as . . . ·9708 7379.

Rate of Interest r and its Logarithm.
Ratio R *and its Logarithm.*

Rate per Cent.	r	log. r	R	log. R
1/12	·0008$\dot{3}$	$\bar{4}$·92081 87540.	1·0008$\dot{3}$	0·00036 17614
1/10	·001	$\bar{3}$·00000 00000	1·001	00043 40775
1/8	·00125	09691 00130	1·00125	00054 25291.
1/6	·0016$\dot{6}$	22184 87496	1·0016$\dot{6}$	00072 32216
1/5	·002	30102 99957.	1·002	00086 77215
1/4	·0025	39794 00087.	1·0025	00108 43813.
3/10	·003	47712 12547	1·003	00130 09330
1/3	·00$\dot{3}$	52287 87453.	1·00$\dot{3}$	00144 52409
3/8	·00375	57403 12677	1·00375	00162 55583.
2/5	·004	60205 99913	1·004	00173 37128
5/12	·0041$\dot{6}$	61978 87583.	1·0041$\dot{6}$	00180 58009
1/2	·005	69897 00043	1·005	00216 60618.
7/12	·0058$\dot{3}$	76591 67940.	1·0058$\dot{3}$	00252 60240
3/5	·006	77815 12504.	1·006	00259 79807
5/8	·00625	79588 00173	1·00625	00270 58934.
2/3	·006	82390 87409	1·006	00288 56882
7/10	·007	84509 80400	1·007	00302 94706
3/4	·0075	87506 12634.	1·0075	00324 50548
4/5	·008	90308 99870.	1·008	00346 05321
5/6	·008$\dot{3}$	92081 87540.	1·008$\dot{3}$	00360 41243
7/8	·00875	94200 80530	1·00875	00378 35477
9/10	·009	95424 25094	1·009	00389 11662
11/12	·0091$\dot{6}$	96221 14391	1·0091$\dot{6}$	00396 28971
1	·01	$\bar{2}$·00000 00000	1·01	00432 13738.
1/12	·0108$\dot{3}$	03476 21063	1·0108$\dot{3}$	00467 95548
1/10	·011	04139 26852	1·011	00475 11556
1/8	·0112$\dot{5}$	05115 25224	1·0112$\dot{5}$	00485 85346
1/6	·0116$\dot{6}$	06694 67896	1·0116$\dot{6}$	00503 74407
1/5	·012	07918 12460	1·012	00518 05125
1/4	·0125	09691 00130	1·0125	00539 50319.
3/10	·01$\dot{3}$	11394 33523	1·01$\dot{3}$	00560 94454
1/3	·01$\dot{3}$	12493 87366	1·01$\dot{3}$	00575 23289
3/8	·01375	13830 26982.	1·01375	00593 08672
2/5	·014	14612 80357.	1·014	00603 79550
5/12	·0141$\dot{6}$	15126 76753	1·0141$\dot{6}$	00610 93322
1/2	·015	17609 12591.	1·015	00646 60422
7/12	·0158$\dot{3}$	19957 23549	1·0158$\dot{3}$	00682 24596
3/5	·016	20411 99827.	1·016	00689 37079
5/8	·01625	21085 33653	1·01625	00700 05586
2/3	·016	22184 87496	1·016	00717 85846
7/10	·017	23044 89214.	1·017	00732 09529
3/4	·0175	24303 80487.	1·0175	00753 44179
4/5	·018	25527 25051	1·018	00774 77780
5/6	·018$\dot{3}$	26324 14348.	1·018$\dot{3}$	00788 99599
7/8	·01875	27300 12721.	1·01875	00806 76217
9/10	·019	27875 36010.	1·019	00817 41840
11/12	·0191$\dot{6}$	28254 65900.	1·0191$\dot{6}$	00824 52110
2	·02	30102 99957.	1·02	00860 01718.

Rate of Interest r and its Logarithm.

Ratio R *and its Logarithm.*

Rate per Cent.	r	log. r	R	log. R
2 1/8	·02125	$\bar{2}$·32735 89344.	1·02125	0·00913 20695
1/4	·0225	35218 25181	1·0225	00966 33167.
3/8	·02375	37566 36140.	1·02375	01019 39148.
1/2	·025	39794 00087.	1·025	01072 38654.
5/8	·02625	41912 93077	1·02625	01125 31701
3/4	·0275	43933 26938	1·0275	01178 18306.
7/8	·02875	45863 78490	1·02875	01230 98482
3	·03	47712 12547	1·03	01283 72247
1/8	·03125	49485 00217.	1·03125	01336 39616.
1/4	·0325	51188 33610.	1·0325	01389 00603
3/8	·03375	52827 37772.	1·03375	01441 55226.
1/2	·035	54406 80444.	1·035	01494 03498.
5/8	·03625	55930 80109	1·03625	01546 45436.
3/4	·0375	57403 12677	1·0375	01598 81054.
7/8	·03875	58827 17068	1·03875	01651 10368.
4	·04	60205 99913	1·04	01703 33339
1/8	·04125	61542 39529	1·04125	01755 50144
1/4	·0425	62838 89301.	1·0425	01807 60636
3/8	·04375	64097 80574	1·04375	01859 64885
1/2	·045	65321 25138.	1·045	01911 62904
5/8	·04625	66511 17371	1·04625	01963 54710
3/4	·0475	67669 36096	1·0475	02015 40316
7/8	·04875	68797 46200	1·04875	02067 19738
5	·05	69897 00043	1·05	02118 92991.
1/8	·05125	70969 38697	1·05125	02170 60088
1/4	·0525	72015 93034	1·0525	02222 21045
3/8	·05375	73037 84686	1·05375	02273 75876
1/2	·055	74036 26895.	1·055	02325 24596
5/8	·05625	75012 25268	1·05625	02376 67220
3/4	·0575	75966 78447.	1·0575	02428 03760
7/8	·05875	76900 78709	1·05875	02479 34233
6	·06	77815 12504.	1·06	02530 58653.
1/8	·06125	78710 60930	1·06125	02581 77034.
1/4	·0625	79588 00173	1·0625	02632 89387
3/8	·06375	80448 01891	1·06375	02683 95742.
1/2	·065	81291 33566	1·065	02734 96078
5/8	·06625	82118 58826	1·06625	02785 90462.
3/4	·0675	82930 37728	1·0675	02836 78837
7/8	·06875	83727 27025	1·06875	02887 61307.
7	·07	84509 80400	1·07	02938 37777.
1/2	·075	87506 12634	1·075	03140 84643
8	·08	90308 99870.	1·08	03342 37555
9	·09	95424 25094	1·09	03742 64979
10	·10	$\bar{1}$·00000 00000	1·10	04139 26852.
11	·11	04139 26852	1·11	04532 29788
12	·12	07918 12460	1·12	04921 80227
20	·2	30102 99957.	1·20	07918 12460
50	·5	69897 00043	1·50	17609 12591.

$3\frac{1}{2}$ per Cent.

n Years.	R^n Amount of £1 in n years.	v^n Present Value of £1 due n years hence.	M_n Amount of £1 per annum in n years.	a_n Present Value of £1 per annum for n years.	${}_np$ Present Value of Reversion to £1 per annum after n years.	σ_n Sinking Fund that will amount to £1 in n years.	f_n Present Value of £1 receivable once in every nth year.
1	1·0350	·9662.	1·	·9662.	27·6052	1·	28·5714
2	1·0712	·9335	2·0350	1·8997.	26·6717	·4914	14·0400
3	1·1087	·9019	3·1062	2·8016	25·7698.	·3219	9·1981
4	1·1475	·8714	4·2149	3·6731.	24·8983	·2373.	6·7786
5	1·1877.	·8420.	5·3625.	4·5151.	24·0564.	·1865.	5·3280
6	1·2293.	·8135	6·5502.	5·3286.	23·2429.	·1527.	4·3619
7	1·2723.	·7860.	7·7794	6·1145	22·4569.	·1285	3·6727
8	1·3168	·7594	9·0517.	6·8740.	21·6975.	·1105.	3·1565.
9	1·3629.	·7337	10·3685.	7·6077.	20·9637	·0964	2·7556
10	1·4106.	·7089	11·7314.	8·3166	20·2548	·0852	2·4355.
11	1·4600.	·6849	13·1420.	9·0016.	19·5699.	·0761.	2·1741.
12	1·5111.	·6618.	14·6020.	9·6633	18·9081.	·0685.	1·9567.
13	1·5640.	·6394	16·1130	10·3027	18·2687.	·0621.	1·7732.
14	1·6187.	·6178.	17·6770.	10·9205	17·6509	·0566.	1·6163
15	1·6753	·5969.	19·2957.	11·5174	17·0540	·0518	1·4807
16	1·7340.	·5767	20·9710	12·0941	16·4773	·0477.	1·3624
17	1·7947.	·5572	22·7050	12·6513	15·9201	·0440	1·2584.
18	1·8575.	·5384.	24·4997.	13·1897.	15·3817	·0408	1·1662.
19	1·9225	·5202.	26·3572.	13·7098	14·8616.	·0379	1·0840
20	1·9898.	·5026.	28·2797.	14·2124	14·3590	·0354.	1·0103
21	2·0594	·4856.	30·2695.	14·6980.	13·8735.	·0330	·9439
22	2·1315	·4692.	32·3289	15·1671	13·4043	·0309	·8838.
23	2·2061	·4533.	34·4604	15·6204	12·9510	·0290	·8291
24	2·2833	·4380.	36·6665	16·0584.	12·5131.	·0273.	·7792
25	2·3632	·4231	38·9499.	16·4815	12·0899	·0257.	·7335
26	2·4460.	·4088	41·3131	16·8904.	11·6811.	·0242	·6916.
27	2·5316.	·3950	43·7591.	17·2854.	11·2861.	·0229.	·6529
28	2·6202.	·3817.	46·2906	17·6670	10·9044	·0216	·6172
29	2·7119.	·3687	48·9108.	18·0358.	10·5357.	·0204	·5842.
30	2·8068.	·3563.	51·6227.	18·3920	10·1794.	·0194.	·5535.
31	2·9050	·3442	54·4295.	18·7363.	9·8352.	·0184.	·5249
32	3·0067	·3326.	57·3345	19·0689.	9·5026.	·0174	·4983
33	3·1119	·3213	60·3412	19·3902	9·1812	·0166.	·4735.
34	3·2209.	·3105.	63·4532.	19·7007.	8·8707	·0158.	·4503.
35	3·3336.	·3000.	66·6740	20·0007.	8·5708.	·0150.	·4285
36	3·4503.	·2898	70·0076	20·2905.	8·2809	·0143.	·4081
37	3·5710	·2800	73·4579.	20·5705	8·0009	·0136	·3890.
38	3·6960	·2706.	77·0289.	20·8411.	7·7303	·0130.	·3709
39	3·8254.	·2614	80·7249	21·1025.	7·4689	·0124.	·3539
40	3·9593.	·2526.	84·5503.	21·3551.	7·2164.	·0118	·3379
41	4·0978	·2440	88·5095	21·5991	6·9723	·0113.	·3228
42	4·2413.	·2358.	92·6074.	21·8349.	6·7365	·0108.	·3085
43	4·3897	·2278	96·8486	22·0627.	6·5087	·0103	·2950
44	4·5433	·2201	101·2383	22·2828.	6·2886	·0099.	·2822
45	4·7024.	·2127.	105·7817.	22·4955.	6·0760.	·0095.	·2701.
46	4·8669	·2055.	110·4840	22·7009	5·8705	·0091.	·2586
47	5·0373.	·1985	115·3510.	22·8994	5·6720.	·0087.	·2477.
48	5·2136.	·1918	120·3883.	23·0912	5·4802.	·0083	·2373
49	5·3961.	·1853	125·6018	23·2766.	5·2949.	·0080.	·2275.
50	5·5849	·1791.	130·9979	23·4556	5·1158	·0076	·2181

3 per Cent.

n	R^n	v^n	M_n	a_n	$_nP$	σ_n	f_n
51	4·5154 2320.	·2214 6318	117·1807 7331.	25·9512 2719	7·3821 0614	·0085 3382	·2844 6077
52	4·6508 8590.	·2150 1280	121·6961 9651.	26·1662 3999	7·1670 9334	·0082 1718	·2739 0612
53	4·7904 1247	·2087 5029	126·3470 8240	26·3749 9028	6·9583 4305	·0079 1471.	·2638 2353
54	4·9341 2485.	·2026 7019.	131·1374 9488.	26·5776 6047.	6·7556 7286	·0076 2558	·2541 8614.
55	5·0821 4859	·1967 6717	136·0716 1972	26·7744 2764.	6·5589 0569	·0073 4907	·2449 6903
56	5·2346 1305.	·1910 3609.	141·1537 6831	26·9654 6373.	6·3678 6961.	·0070 8447	·2361 4909.
57	5·3916 5144	·1854 7193	146·3883 8136	27·1509 3566.	6·1823 9768.	·0068 3114	·2277 0477
58	5·5534 0098	·1800 6984.	151·7800 3280	27·3310 0549	6·0023 2784.	·0065 8848	·2196 1606
59	5·7200 0301	·1748 2508	157·3334 3379.	27·5058 3058.	5·8275 0276.	·0063 5593.	·2118 6427
60	5·8916 0310	·1697 3309	163·0534 3680	27·6755 6367.	5·6577 6967.	·0061 3296.	·2044 3196.
61	6·0683 5120.	·1647 8941.	168·9450 3991.	27·8403 5307	5·4929 8026.	·0059 1908	·1973 0282
62	6·2504 0173	·1599 8972.	175·0133 9110	28·0003 4279	5·3329 9054	·0057 1385.	·1904 6162.
63	6·4379 1379.	·1553 2982	181·2637 9284.	28·1556 7261	5·1776 6072	·0055 1682	·1838 9405
64	6·6310 5120.	·1508 0565	187·7017 0662	28·3064 7826	5·0268 5507.	·0053 2760	·1775 8674.
65	6·8299 8273	·1464 1325	194·3327 5782.	28·4528 9152.	4·8804 4181	·0051 4581	·1715 2709
66	7·0348 8222.	·1421 4879	201·1627 4055	28·5950 4031.	4·7382 9302	·0049 7110.	·1657 0332.
67	7·2459 2868	·1380 0853	208·1976 2277	28·7330 4884	4·6002 8449.	·0048 0313.	·1601 0429
68	7·4633 0654	·1339 8887.	215·4435 5145	28·8670 3771	4·4662 9562	·0046 4159.	·1547 1957.
69	7·6872 0374.	·1300 8628	222·9068 5800.	28·9971 2399	4·3362 0934	·0044 8618.	·1495 3929
70	7·9178 2191	·1262 9736.	230·5940 6374.	29·1234 2135	4·2099 1198	·0043 3663.	·1445 5417.
71	8·1553 5657.	·1226 1880.	238·5118 8565.	29·2460 4015.	4·0872 9319.	·0041 9266	·1397 5544.
72	8·4000 1727.	·1190 4737	246·6672 4222.	29·3650 8752	3·9682 4581	·0040 5404	·1351 3482.
73	8·6520 1778	·1155 7998.	255·0672 5949.	29·4806 6750.	3·8526 6584.	·0039 2053	·1306 8448
74	8·9115 7832.	·1122 1357.	263·7192 7727	29·5928 8107.	3·7404 5227.	·0037 9191	·1263 9703.
75	9·1789 2567.	·1089 4521	272·6308 5559.	29·7018 2628.	3·6315 0706.	·0036 6796	·1222 6545.
76	9·4542 9344.	·1057 7205	281·8097 8126.	29·8075 9833.	3·5257 3501.	·0035 4849	·1182 8310.
77	9·7379 2224	·1026 9131	291·2640 7469	26·9102 8964.	3·4230 4370.	·0034 3331	·1144 4368
78	10·0300 5991.	·0997 0030	301·0019 9693	30·0099 8994.	3·3233 4340.	·0033 2224.	·1107 4124.
79	10·3309 6171.	·0967 9641.	311·0320 5684	30·1067 8635.	3·2265 4698	·0032 1510	·1071 7009.
80	10·6408 9056.	·0939 7710.	321·3630 1855.	30·2007 6345.	3·1325 6989.	·0031 1175.	·1037 2486.
81	10·9601 1727	·0912 3990.	332·0039 0910	30·2920 0335.	3·0413 2999.	·0030 1201	·1004 0042.
82	11·2889 2079	·0885 8243.	342·9640 2638.	30·3805 8577	2·9527 4756	·0029 1576.	·0971 9192
83	11·6275 8842.	·0860 0236.	354·2529 4717.	30·4665 8813.	2·8667 4520	·0028 2284	·0940 9472
84	11·9764 1607.	·0834 9743	365·8805 3558	30·5500 8556	2·7832 4777	·0027 3313	·0911 0442.
85	12·3357 0855.	·0810 6547.	377·8569 5165	30·6311 5103	2·7021 8230	·0026 4650	·0882 1681.
86	12·7057 7981.	·0787 0434.	390·1926 6020	30·7098 5537.	2·6234 7796	·0025 6284.	·0854 2788
87	13·0869 5320	·0764 1198.	402·8984 4001.	30·7862 6735.	2·5470 6598	·0024 8202.	·0827 3384.
88	13·4795 6180.	·0741 8639.	415·9853 9321.	30·8604 5374.	2·4728 7960.	·0024 0393	·0801 3102.
89	13·8839 4865	·0720 2562.	429·4649 5500	30·9324 7936.	2·4008 5398.	·0023 2848.	·0776 1596.
90	14·3004 6711.	·0699 2779.	443·3489 0365	31·0024 0714	2·3309 2619	·0022 5556.	·0751 8533.
91	14·7294 8112	·0678 9105	457·6493 7076	31·0702 9820.	2·2630 3514.	·0021 8508.	·0728 3596
92	15·1713 6556.	·0659 1364	472·3788 5189.	31·1362 1184	2·1971 2149	·0021 1694	·0705 6483.
93	15·6265 0652	·0639 9383.	487·5592 1744	31·2002 0567	2·1331 2766	·0020 5107	·0683 6903.
94	16·0953 0172.	·0621 2993	503·1767 2397.	31·2623 3560	2·0709 9773	·0019 8737	·0662 4578.
95	16·5781 6077	·0603 2032	519·2720 2568	31·3226 5592	2·0106 7741.	·0019 2577	·0641 9243
96	17·0755 0559	·0585 6342.	535·8501 8645	31·3812 1934	1·9521 1399.	·0018 6619	·0622 0644
97	17·5877 7076	·0568 5769.	552·9256 9205.	31·4380 7703	1·8952 5630.	·0018 0856	·0602 8538.
98	18·1154 0388	·0552 0164.	570·5134 6281	31·4932 7867	1·8400 5466.	·0017 5281.	·0584 2690
99	18·6588 6600	·0535 9383.	588·6288 6669	31·5468 7250.	1·7864 6083	·0016 9886	·0566 2878.
100	19·2186 3198	·0520 3284.	607·2877 3269	31·5989 0534.	1·7344 2800.	·0016 4667.	·0548 8886

$r = \cdot 03$, its log. $\bar{2}\cdot 4771212547$
$p = 33\cdot\dot{3}$, its log. $1\cdot 5228787453$

$R = 1\cdot 03$, its log. $0\cdot 0128372247$
$v = \cdot 970873786408$, its log. $\bar{1}\cdot 9871627753$
$d = \cdot 029126213591$, its log. $\bar{2}\cdot 4642840300$

4 per Cent.

n No. of Years.	R^n Amount of £1 in n years.	v^n Present Value of £1 due n years hence.	M_n Amount of £1 per annum in n years.	a_n Present Value of £1 per annum for n years.	${}_np$ Present Value of Reversion to £1 per annum after n years.	σ_n Sinking Fund that will amount to £1 in n years.	f_n Present Value of £1 receivable once in every nth year.
1	1·04	·9615	1·	·9615	24·0385.	1·	25·
2	1·0816	·9246.	2·04	1·8861.	23·1139	·4902.	12·2549
3	1·1249.	·8890.	3·1216	2·7751.	22·2249	·3203	8·0087
4	1·1699.	·8548	4·2465.	3·6299.	21·3701	·2355.	5·8873.
5	1·2167.	·8219	5·4163	4·4518	20·5482.	·1846	4·6157.
6	1·2653	·7903	6·6330.	5·2421	19·7579.	·1508.	3·7690
7	1·3159	·7599	7·8983.	6·0021.	18·9979	·1266	3·1652
8	1·3686.	·7307.	9·2142	6·7327	18·2673.	·1085	2·7132.
9	1·4233	·7026.	10·5828.	7·4353	17·5647.	·0945.	2·3623
10	1·4802	·6756.	12·0061	8·1109.	16·8891	·0833.	2·0823.
11	1·5395.	·6496.	13·4864.	8·7605.	16·2395	·0741	1·8537
12	1·6010	·6246.	15·0258	9·3851.	15·6149	·0666.	1·6638
13	1·6651.	·6006.	16·6268	9·9856	15·0144.	·0601	1·5036.
14	1·7317.	·5775.	18·2919	10·5631	14·4369.	·0547.	1·3667
15	1·8009	·5553.	20·0236.	11·1184.	13·8816	·0499	1·2485
16	1·8730.	·5339	21·8245	11·6523.	13·3477	·0458	1·1455
17	1·9479	·5134.	23·6975	12·1657.	12·8343	·0422.	1·0550.
18	2·0258	·4936	25·6454	12·6593.	12·3407	·0390.	·9748
19	2·1068	·4746	27·6712	13·1339	11·8661.	·0361	·9035.
20	2·1911	·4564.	29·7781.	13·5903	11·4097.	·0336.	·8395
21	2·2788.	·4388	31·9692	14·0292.	10·9708	·0313.	·7820
22	2·3699	·4220.	34·2480.	14·4511	10·5489.	·0292.	·7300.
23	2·4647	·4057	36·6179.	14·8568	10·1432.	·0273	·6827
24	2·5633	·3901	39·0826	15·2470.	9·7530	·0256.	·6397.
25	2·6658	·3751	41·6459	15·6221.	9·3779	·0240	·6003.
26	2·7725.	·3607.	44·3117	15·9828.	9·0172	·0226.	·5642.
27	2·8834.	·3468	47·0842	16·3296.	8·6704	·0212	·5310.
28	2·9987	·3335.	49·9676.	16·6631.	8·3369	·0200	·5003
29	3·1187.	·3207.	52·9663.	16·9837	8·0163.	·0189.	·4720.
30	3·2434.	·3083	56·0849	17·2920	7·7080.	·0178	·4458.
31	3·3731	·2965.	59·3283	17·5885.	7·4115	·0169.	·4214.
32	3·5081.	·2851.	62·7015.	17·8736.	7·1264	·0159	·3987
33	3 6484.	·2741.	66·2095	18·1476	6·8524.	·0151	·3776.
34	3·7943	·2636.	69·8579	18·4112.	6·5888	·0143	·3579.
35	3·9461.	·2534	73·6522	18·6646	6·3354.	·0136.	·3394
36	4·1039	·2437.	77·5983	18·9083.	6·0917	·0129.	·3222.
37	4·2681.	·2343.	81·7022	19·1426.	5·8574	·0122	·3060.
38	4·4388	·2253.	85·9703	19·3679.	5·6321	·0116	·2908.
39	4·6164.	·2166	90·4091	19·5845.	5·4155	·0111.	·2765
40	4·8010	·2083.	95·0255	19·7928.	5·2072	·0105	·2631.
41	4·9931.	·2003.	99·8265	19·9931.	5·0069	·0100	·2504
42	5·1928.	·1926.	104·8196.	20·1856	4·8144.	·0095	·2385
43	5·4005.	·1852.	110·0124.	20·3708.	4·6292	·0091.	·2272
44	5·6165	·1780	115·4129.	20·5488	4·4512.	·0087.	·2166
45	5·8412.	·1712.	121·0294.	20·7200	4·2800.	·0083.	·2066.
46	6·0748	·1646	126·8706.	20·8847.	4·1153	·0079.	·1971.
47	6·3178	·1583.	132·9454.	21·0429	3·9571.	·0075	·1880
48	6·5705	·1522.	139·2632	21·1951	3·8049.	·0072.	·1795
49	6·8333	·1463	145·8337	21·3415.	3·6585	·0069.	·1714
50	7·1067.	·1407	152·6671.	21·4822.	3·5178	·0066.	·1638.

$3\frac{1}{2}$ per Cent.							
n	R^n	v^n	M_n	a_n	${}_np$	σ_n	f_n
51	5·7804.	·1730.	136·5828	23·6286	4·9428	·0073	·2092.
52	5·9827	·1671	142·3632	23·7958.	4·7757.	·0070	·2007.
53	6·1921	·1615.	148·3459	23·9573.	4·6142.	·0067	·1926
54	6·4088	·1560	154·5381.	24·1133.	4·4581	·0065.	·1849.
55	6·6331	·1508.	160·9469.	24·2641.	4·3074.	·0062	·1775
56	6·8653	·1457.	167·5800	24·4097	4·1617	·0060.	·1705.
57	7·1056.	·1407	174·4453	24·5504	4·0210.	·0057	·1638.
58	7·3543.	·1360.	181·5509	24·6864	3·8850	·0055	·1574.
59	7·6117.	·1314.	188·9052	24·8178.	3·7536	·0053.	·1512
60	7·8781.	·1269	196·5169.	24·9447	3·6267.	·0051.	·1454.
61	8·1538	·1226	204·3950.	25·0674.	3·5041.	·0049.	·1398.
62	8·4392	·1185.	212·5488.	25·1859.	3·3856.	·0047	·1344
63	8·7346.	·1145.	220·9880	25·3004.	3·2711.	·0045	·1293.
64	9·0403.	·1106	229·7226.	25·4110.	3·1605.	·0044.	·1244.
65	9·3567	·1069.	238·7629.	25·5178	3·0536.	·0042.	·1197.
66	9·6842.	·1033.	248·1196.	25·6211	2·9503	·0040	·1152.
67	10·0231	·0998.	257·8038.	25·7209.	2·8505	·0039.	·1108
68	10·3739	·0964.	267·8269.	25·8173.	2·7542.	·0037	·1067.
69	10·7370	·0931	278·2008	25·9104	2·6610	·0036.	·1027
70	11·1128	·0900.	288·9379.	26·0004.	2·5710	·0035.	·0989.
71	11·5018.	·0869	300·0507.	26·0873	2·4841.	·0033	·0952
72	11·9043	·0840	311·5525.	26·1713	2·4001.	·0032	·0917
73	12·3210.	·0812.	323·4568	26·2525	2·3189	·0031.	·0883
74	12·7522	·0784	335·7778.	26·3309	2·2405	·0030.	·0851.
75	13·1986.	·0758.	348·5300	26·4067.	2·1647	·0029.	·0820.
76	13·6605.	·0732	361·7286.	26·4799.	2·0915	·0028.	·0790.
77	14·1386	·0707	375·3891.	26·5506	2·0208	·0027.	·0761
78	14·6335.	·0683	389·5277.	26·6190.	1·9525.	·0026.	·0733
79	15·1456	·0660	404·1611	26·6850.	1·8864	·0025.	·0707.
80	15·6757	·0638.	419·3068.	26·7488.	1·8227.	·0024.	·0681
81	16·2244.	·0616	434·9825	26·8104	1·7610	·0023.	·0657.
82	16·7922	·0596.	451·2069	26·8700.	1·7015.	·0022	·0633
83	17·3800.	·0575	467·9992.	26·9275	1·6439	·0021	·0611.
84	17·9883.	·0556.	485·3791	26·9831.	1·5883	·0021.	·0589.
85	18·6179.	·0537	503·3674.	27·0368	1·5346	·0020.	·0568.
86	19·2695.	·0519.	521·9853.	27·0887.	1·4827	·0019	·0547
87	19·9439	·0501	541·2547	27·1388	1·4326.	·0018	·0528.
88	20·6420.	·0484	561·1987.	27·1873.	1·3841	·0018.	·0509
89	21·3644	·0468	581·8406	27·2341.	1·3373	·0017	·0491
90	22·1122.	·0452	603·2050	27·2793	1·2921	·0017.	·0474.
91	22·8861	·0437.	625·3172	27·3230	1·2484	·0016.	·0457.
92	23·6871	·0422	648·2033	27·3652	1·2062	·0015	·0441.
93	24·5162.	·0408.	671·8904	27·4060	1·1654	·0015.	·0425
94	25·3742	·0394	696·4066.	27·4454	1·1260	·0014	·0410
95	26·2623	·0381.	721·7808	27·4835	1·0879	·0014.	·0396.
96	27·1815	·0368.	748·0431	27·5203.	1·0511	·0013	·0382.
97	28·1329.	·0355	775·2247.	27·5558	1·0156.	·0013.	·0369.
98	29·1175	·0343	803·3575	27·5902.	·9812	·0012	·0356.
99	30·1366	·0332.	832·4750	27·6234.	·9481.	·0012	·0343
100	31·1914	·0321.	862·6117.	27·6554	·9160	·0012.	·0331

$r = \cdot035$, its log. $\bar{2}\cdot5440680444$
$p = 28\cdot571428$, its log. $1\cdot4559319556$

$R = 1\cdot035$, its log. $0\cdot0149403498$
$v = \cdot966183574879$, log. $\bar{1}\cdot9850596502$
$d = \cdot033816425121$, log. $\bar{2}\cdot5291276946$

$4\frac{1}{2}$ per Cent.

n Yrs.	R^n Amount of £1 in n years.	v^n Present Value of £1 due n years hence.	M_n Amount of £1 per annum in n years.	a_n Present Value of £1 per annum for n years.	${}_np$ Present Value of Reversion to £1 per annum after n years.	σ_n Sinking Fund that will amount to £1 in n years.	f_n Present Value of £1 receivable once in every nth year.
1	1·0450	·9569	1·	·9569	21·2653.	1·	22·2222
2	1·0920	·9157	2·045	1·8727.	20·3496.	·4890.	10·8666
3	1·1412.	·8763.	3·1370	2·7490.	19·4733.	·3188.	7·0839.
4	1·1925	·8386.	4·2782.	3·5875	18·6347.	·2337	5·1943
5	1·2462.	·8025.	5·4707	4·3900.	17·8322	·1828.	4·0620
6	1·3023.	·7679.	6·7169.	5·1579.	17·0643	·1489.	3·3084
7	1·3609.	·7348	8·0192.	5·8927	16·3295	·1247	2·7711
8	1·4221	·7032.	9·3800	6·5959.	15·6263	·1066	2·3691
9	1·4861.	·6729	10·8021	7·2688.	14·9534	·0926.	2·0572
10	1·5530.	·6439	12·2882	7·9127	14·3095	·0814.	1·8084
11	1·6229.	·6162.	13·8412.	8·5289	13·6933	·0722	1·6055
12	1·6959.	·5897.	15·4640	9·1186.	13·1036	·0647.	1·4370
13	1·7722.	·5643.	17·1599	9·6829.	12·5394.	·0583.	1·2950
14	1·8519	·5400.	18·9321	10·2228	11·9994.	·0528	1·1738.
15	1·9353.	·5167	20·7841.	10·7395	11·4827.	·0481	1·0692.
16	2·0224.	·4945.	22·7193	11·2340	10·9882	·0440	·9781
17	2·1134.	·4732.	24·7417	11·7072.	10·5150	·0404	·8982.
18	2·2085.	·4528	26·8551.	12·1600.	10·0622	·0372	·8275.
19	2·3079.	·4333	29·0636.	12·5933.	9·6289	·0344	·7646
20	2·4117	·4146	31·3714	13·0079	9·2143.	·0319.	·7084.
21	2·5202	·3968.	33·7831	13·4047	8·8175.	·0296	·6578.
22	2·6337.	·3797	36·3034.	13·7844	8·4378.	·0275	·6121
23	2·7522.	·3634.	38·9370	14·1478.	8·0744	·0257.	·5707
24	2·8760	·3477	41·6892.	14·4955.	7·7267	·0240.	·5330
25	3·0054	·3327	44·5652	14·8282	7·3940	·0224	·4986
26	3·1407.	·3184	47·5706	15·1466	7·0756	·0210	·4672.
27	3·2820	·3047.	50·7113	15·4513	6·7709	·0197	·4382
28	3·4297.	·2916.	53·9933	15·7429.	6·4793	·0185	·4116.
29	3·5840	·2790	57·4230	16·0219.	6·2003	·0174	·3870.
30	3·7453	·2670	61·0071.	16·2889.	5·9333	·0164.	·3643.
31	3·9139.	·2555	64·7524.	16·5444.	5·6778	·0154	·3432.
32	4·0900.	·2445.	68·6662	16·7889.	5·4333	·0146.	·3236
33	4·2740	·2340.	72·7562	17·0229.	5·1994.	·0137	·3054
34	4·4664.	·2239.	77·0303.	17·2468.	4·9755.	·0130.	·2885.
35	4·6673	·2143.	81·4966	17·4610	4·7612	·0123.	·2727.
36	4·8774.	·2050	86·1640.	17·6660	4·5562.	·0116	·2579
37	5·0969.	·1962.	91·0413	17·8622	4·3600.	·0110.	·2441.
38	5·3262	·1878.	96·1382	18·0500.	4·1722	·0104	·2312.
39	5·5659.	·1797.	101·4644	18·2297.	3·9926.	·0099.	·2190
40	5·8164.	·1719	107·0303	18·4016.	3·8206	·0093	·2076
41	6·0781	·1645	112·8467.	18·5661	3·6561	·0089.	·1969
42	6·3516	·1574	118·9248.	18·7235	3·4987.	·0084	·1869.
43	6·6374	·1507.	125·2764	18·8742	3·3480	·0080.	·1774.
44	6·9361	·1442.	131·9138	19·0184.	3·2038	·0076.	·1685.
45	7·2482	·1380.	138·8500.	19·1563	3·0659.	·0072	·1600
46	7·5744	·1320	146·0982	19·2884.	2·9339.	·0068	·1521
47	7·9153.	·1263	153·6726	19·4147	2·8075	·0065	·1446
48	8·2715.	·1209.	161·5879	19·5356	2·6866	·0062.	·1375
49	8·6437.	·1157.	169·8594.	19·6513.	2·5709	·0059.	·1308
50	9·0326	·1107	178·5030	19·7620	2·4602	·0056	·1245.

4 per Cent.							
n	R^n	v^n	M_n	a_n	${}_np$	σ_n	f_n
51	7·3910.	·1353	159·7738.	21·6175.	3·3825	·0063.	·1565.
52	7·6866.	·1301.	167·1647	21·7476.	3·2524	·0060.	·1496.
53	7·9941.	·1251.	174·8513	21·8727.	3·1273	·0057	·1430.
54	8·3138	·1203.	182·8454.	21·9930.	3·0070	·0055.	·1367
55	8·6464.	·1157.	191·1592.	22·1086	2·8914.	·0052	·1308.
56	8·9922	·1112	199·8055	22·2198	2·7802.	·0050	·1251
57	9·3519	·1069	208·7978.	22·3267	2·6733.	·0048.	·1197
58	9·7260.	·1028	218·1497.	22·4296.	2·5704	·0046.	·1146
59	10·1150	·0989.	227·8757.	22·5284	2·4716.	·0044.	·1097
60	10·5196	·0951.	237·9907.	22·6235.	2·3765	·0042	·1050
61	10·9404	·0914	248·5103	22·7149.	2·2851	·0040	·1006.
62	11·3780	·0879.	259·4507	22·8028.	2·1972	·0039.	·0964.
63	11·8332.	·0845	270·8288.	22·8873.	2·1127	·0037.	·0923
64	12·3065.	·0813.	282·6619	22·9685	2·0315.	·0035	·0884
65	12·7987	·0781	294·9684.	23·0467.	1·9533	·0034.	·0848.
66	13·3107.	·0751	307·7671	23·1218	1·8782.	·0032	·0812
67	13·8431	·0722	321·0778	23·1940	1·8060.	·0031	·0779.
68	14·3968	·0695.	334·9209	23·2635	1·7365.	·0030.	·0746
69	14·9727	·0668.	349·3177	23·3303.	1·6697	·0029.	·0716.
70	15·5716	·0642	364·2905.	23·3945	1·6055.	·0027	·0686
71	16·1945.	·0617	379·8621.	23·4563.	1·5437	·0026	·0658
72	16·8423.	·0594.	396·0566.	23·5156	1·4844.	·0025	·0631
73	17·5160.	·0571.	412·8988	23·5727	1·4273.	·0024	·0605
74	18·2166.	·0549.	430·4148.	23·6276	1·3724.	·0023	·0581.
75	18·9453.	·0528.	448·6314.	23·6804	1·3196.	·0022	·0557
76	19·7031.	·0508.	467·5766	23·7312.	1·2688	·0021	·0535.
77	20·4912.	·0488	487·2797.	23·7800.	1·2200	·0021.	·0513
78	21·3108	·0469	507·7709.	23·8269.	1·1731	·0020.	·0492
79	22·1633.	·0451	529·0817	23·8720	1·1280.	·0019.	·0473.
80	23·0498.	·0434.	551·2450.	23·9154.	1·0846	·0018	·0454.
81	23·9718.	·0417	574·2948.	23·9571	1·0429.	·0017	·0435
82	24·9307.	·0401	598·2666.	23·9972	1·0028.	·0017.	·0418.
83	25·9279.	·0386.	623·1972	24·0358.	·9642	·0016	·0401
84	26·9650	·0371.	649·1251	24·0729.	·9271	·0015	·0385
85	28·0436	·0357.	676·0901	24·1085	·8915.	·0015.	·0370.
86	29·1653	·0343.	704·1337	24·1428	·8572.	·0014	·0355
87	30·3320.	·0330.	733·2991.	24·1758.	·8242	·0014.	·0341.
88	31·5452	·0317	763·6310	24·2075.	·7925	·0013	·0327
89	32·8071.	·0305.	795·1763.	24·2380.	·7620	·0013.	·0314
90	34·1193	·0293	827·9833	24·2673.	·7327	·0012	·0302.
91	35·4841	·0282.	862·1027.	24·2955.	·7045	·0012.	·0290.
92	36·9035.	·0271.	897·5868.	24·3226.	·6774	·0011	·0279.
93	38·3796	·0261.	934·4902	24·3486	·6514.	·0011.	·0268.
94	39·9148.	·0251.	972·8699.	24·3737.	·6263	·0010	·0257.
95	41·5114.	·0241.	1012·7846	24·3978.	·6022	·0010.	·0247.
96	43·1718	·0232.	1054·2960	24·4209	·5791.	·0009	·0237
97	44·8987	·0223.	1097·4679.	24·4432.	·5568	·0009	·0228.
98	46·6947.	·0214	1142·3666.	24·4646	·5354.	·0009.	·0219.
99	48·5625.	·0206.	1189·0613.	24·4852.	·5148	·0008	·0210
100	50·5049	·0198	1237·6237	24·5050.	·4950	·0008	·0202

$r = ·04$, its log. $\bar{2}·60205999133$ — $R = 1·04$, its log. $0·0170333393$
$p = 25$, its log. $1·39794000867$ — $v = ·96153846$, its log. $\bar{1}·9829666607$
$P = 26$, its log. $1·41497334797$ — $d = ·03846153$, its log. $\bar{2}·5850266520$

5 per Cent.

n Years.	R^n Amount of £1 in n years.	v^n Present Value of £1 due n years hence.	M_n Amount of £1 per annum in n years.	a_n Present Value of £1 per annum for n years.	${}_np$ Present Value of Reversion to £1 per annum after n years.	σ_n Sinking Fund that will amount to £1 in n years.	f_n Present Value of £1 receivable once in every nth year.
1	1·05	·9524.	1·	·9524.	19·0476	1·	20·
2	1·1025	·9070	2·05	1·8594	18·1406.	·4878	9·7561.
3	1·1576	·8638	3·1525	2·7232	17·2768.	·3172	6·3442.
4	1·2155	·8227	4·3101	3·5460.	16·4540	·2320	4·6402
5	1·2763.	·7835	5·5256	4·3295.	15·6705	·1810.	3·6195.
6	1·3401.	·7462	6·8019	5·0757.	14·9243	·1470	2·9403
7	1·4071	·7107.	8·1420	5·7864.	14·2136	·1228	2·4564.
8	1·4775.	·6768	9·5491	6·4632	13·5368.	·1047	2·0944
9	1·5513	·6446	11·0266.	7·1078	12·8922.	·0907.	1·8138
10	1·6289.	·6139	12·5779.	7·7217	12·2783.	·0795	1·5901.
11	1·7103	·5847.	14·2068.	8·3064	11·6936.	·0704.	1·4078.
12	1·7959.	·5568	15·9171	8·8633.	11·1367	·0628	1·2565
13	1·8856	·5303	17·7130.	9·3936.	10·6064	·0565.	1·1291
14	1·9799	·5051.	19·5986	9·8986	10·1014.	·0510	1·0205.
15	2·0789	·4810	21·5786.	10·3797.	9·6203	·0463	·9268
16	2·1829.	·4581	23·6575.	10·8378.	9·1622	·0423.	·8454.
17	2·2920	·4363.	25·8404.	11·2741.	8·7259	·0387.	·7740.
18	2·4066	·4155	28·1324.	11·6896.	8·3104	·0355	·7109
19	2·5270.	·3957	30·5390	12·0853	7·9147.	·0327	·6549
20	2·6533.	·3769.	33·0660.	12·4622	7·5378.	·0302	·6049.
21	2·7860.	·3589	35·7193.	12·8212.	7·1788	·0280.	·5599
22	2·9253.	·3418	38·5052	13·1630	6·8370.	·0260.	·5194
23	3·0715	·3256.	41·4305.	13·4886.	6·5114	·0241	·4827
24	3·2251.	·3101.	44·5020.	13·7986	6·2014.	·0225.	·4494
25	3·3864.	·2953	47·7271.	14·0939	5·9061.	·0210.	·4190
26	3·5557.	·2812	51·1135.	14·3752.	5·6248	·0196.	·3913.
27	3·7335.	·2678	54·6691	14·6430	5·3570.	·0183.	·3658
28	3·9201	·2551.	58·4026.	14·8981	5·1019.	·0171	·3425.
29	4·1161	·2429	62·3227	15·1411.	4·8589	·0160	·3209
30	4·3219	·2314.	66·4388	15·3725.	4·6275	·0151.	·3010
31	4·5380	·2204.	70·7608.	15·5928	4·4072.	·0141	·2826
32	4·7649	·2099.	75·2988	15·8027.	4·1973	·0133.	·2656
33	5·0032.	·1999.	80·0638.	16·0025	3·9975.	·0125.	·2498
34	5·2533	·1904.	85·0670.	16·1929	3·8071.	·0118.	·2351
35	5·5160	·1813.	90·3203	16·3742.	3·6258	·0111.	·2214
36	5·7918	·1727.	95·8363	16·5469.	3·4531	·0104	·2087.
37	6·0814	·1644	101·6281	16·7113.	3·2887	·0098	·1968.
38	6·3855.	·1566	107·7095	16·8679.	3·1321	·0093.	·1857.
39	6·7048.	·1491	114·0950	17·0170	2·9830.	·0088.	·1753.
40	7·0400.	·1420	120·7998.	17·1591.	2·8409	·0083.	·1656.
41	7·3920.	·1353.	127·8398.	17·2944.	2·7056	·0078	·1564
42	7·7616.	·1288	135·2318.	17·4232	2·5768.	·0074.	·1479.
43	8·1497.	·1227	142·9933	17·5459	2·4541.	·0070.	·1399.
44	8·5572.	·1169.	151·1430	17·6628.	2·3372	·0066	·1323
45	8·9850	·1113.	159·7002.	17·7741.	2·2259	·0063.	·1252
46	9·4343.	·1060.	168·6852.	17·8801.	2·1199	·0059	·1186.
47	9·9060.	·1009	178·1194	17·9810	2·0190.	·0056	·1123.
48	10·4013.	·0961	188·0254.	18·0772.	1·9228	·0053	·1064.
49	10·9213	·0916.	198·4267.	18·1687	1·8313.	·0050	·1008.
50	11·4674.	·0872	209·3480.	18·2559	1·7441.	·0048.	·0955

$4\frac{1}{2}$ per Cent.

n	R^n	v^n	M_n	a_n	$_np$	σ_n	f_n
51	9·4391	·1059	187·5357.	19·8680.	2·3543.	·0053	·1185·
52	9·8639.	·1014.	196·9748.	19·9693	2·2529.	·0051.	·1128
53	10·3077	·0970	206·8386	20·0663	2·1559.	·0048	·1074
54	10·7716.	·0928	217·1464.	20·1592.	2·0630	·0046	·1023
55	11·2563	·0888	227·9180.	20·2480	1·9742	·0044.	·0975
56	11·7628	·0850	239·1743.	20·3330	1·8892.	·0042.	·0929
57	12·2922.	·0814.	250·9371	20·4144.	1·8078	·0040.	·0886.
58	12·8453	·0778	263·2293.	20·4922	1·7300.	·0038.	·0844
59	13·4234.	·0745.	276·0746.	20·5667	1·6555.	·0036	·0805.
60	14·0274	·0713.	289·4980.	20·6380	1·5842	·0035.	·0770.
61	14·6586	·0682	303·5254.	20·7062	1·5160.	·0033.	·0732
62	15·3183.	·0653.	318·1840	20·7715	1·4507.	·0031	·0698
63	16·0076	·0625.	333·5023.	20·8340.	1·3882	·0030.	·0666
64	16·7279	·0598.	349·5099.	20·8938.	1·3284	·0029.	·0636.
65	17·4807	·0572	366·2378	20·9510.	1·2712	·0027	·0607.
66	18·2673	·0547	383·7185	21·0057	1·2165	·0026	·0579
67	19·0894.	·0524.	401·9859.	21·0581	1·1641	·0025.	·0553.
68	19·9484.	·0501	421·0752	21·1082	1·1140.	·0024.	·0528.
69	20·8461.	·0480.	441·0236	21·1562	1·0660	·0023.	·0504.
70	21·7841	·0459	461·8697.	21·2021	1·0201	·0022.	·0481
71	22·7644	·0439	483·6538	21·2460	·9762.	·0021.	·0459
72	23·7888	·0420	506·4182	21·2881.	·9341	·0020.	·0439.
73	24·8593	·0402	530·2071.	21·3283	·8939	·0019.	·0419
74	25·9780.	·0385.	555·0664.	21·3668.	·8554	·0018	·0400
75	27·1470.	·0368	581·0444.	21·4036	·8186.	·0017	·0382
76	28·3686	·0353.	608·1914.	21·4389.	·7833	·0016	·0365
77	29·6452.	·0337	636·5600.	21·4726	·7496	·0016.	·0349
78	30·9792	·0323.	666·2052.	21·5049.	·7173	·0015	·0334.
79	32·3733.	·0309.	697·1844	21·5358.	·6864	·0014	·0319.
80	33·8301.	·0296.	729·5577.	21·5653	·6569.	·0014.	·0305.
81	35·3525.	·0283.	763·3878.	21·5936	·6286.	·0013	·0291
82	36·9433	·0271.	798·7402	21·6207	·6015	·0013.	·0278
83	38·6058.	·0259	835·6836.	21·6466	·5756	·0012.	·0266.
84	40·3430	·0248.	874·2893	21·6714.	·5508	·0011	·0254
85	42·1585.	·0237	914·6323	21·6951	·5271	·0011.	·0243.
86	44·0556.	·0227.	956·7908.	21·7178	·5044	·0010	·0232
87	46·0381.	·0217	1000·8464.	21·7395	·4827.	·0010.	·0222
88	48·1098	·0208.	1046·8845.	21·7603	·4619	·0010.	·0212
89	50·2747	·0199.	1094·9943.	21·7802	·4420	·0009	·0203.
90	52·5371	·0190	1145·2690	21·7992	·4230.	·0009.	·0194
91	54·9013.	·0182	1197·8061	21·8175.	·4048.	·0008	·0186.
92	57·3718	·0174	1252·7074.	21·8349.	·3873	·0008.	·0177
93	59·9536.	·0167.	1310·0792	21·8516.	·3707.	·0008.	·0170.
94	62·6515.	·0160.	1370·0328.	21·8675	·3547.	·0007	·0162
95	65·4708.	·0153.	1432·6843.	21·8828	·3394	·0007.	·0155
96	68·4170.	·0146	1498·1551.	21·8974	·3248	·0007.	·0148
97	71·4957	·0140.	1566·5720	21·9114	·3108	·0006	·0142.
98	74·7130	·0134.	1638·0678.	21·9248.	·2974	·0006	·0136.
99	78·0751	·0128	1712·7808	21·9376.	·2846	·0006.	·0130.
100	81·5885	·0123.	1790·8560.	21·9499.	·2724.	·0006.	·0124

r = ·045, its log. $\bar{3}$·65321251378
p = 22·2, its log. 1·34678748622
P = 23·2, its log. 1·36590377666

R = 1·045, its log. 0·0191162904
v = ·956937799043, its log. $\bar{1}$·9808837096
d = ·043062200957, its log. $\bar{2}$·6340962234

6 per Cent.

n Years.	R^n Amount of £1 in n years.	v^n Present Value of £1 due n years hence.	M_n Amount of £1 per annum in n years.	a_n Present Value of £1 per annum for n years.	${}_np$ Present Value of Reversion to £1 per annum after n years.	σ_n Sinking Fund that will amount to £1 in n years.	f_n Present Value of £1 receivable once in every nth year.
1	1·06	·9434.	1·	·9434.	15·7233.	1·	16·6667
2	1·1236	·8900.	2·06	1·8334.	14·8333.	·4854	8·0906
3	1·1910	·8396	3·1836	2·6730	13·9937.	·3141	5·2352.
4	1·2625.	·7921.	4·3746	3·4651	13·2016.	·2286.	3·8099.
5	1·3382	·7473.	5·6371.	4·2124.	12·4543	·1774.	2·8233.
6	1·4185	·7050.	6·9753	4·9173	11·7493	·1434.	2·3894.
7	1·5036	·6651.	8·3938	5·5824.	11·0843.	·1191	1·9856.
8	1·5938	·6274	9·8975.	6·2098.	10·4569.	·1010	1·6839
9	1·6895.	·5919.	11·4913	6·8017.	9·8650.	·0870	1·4504.
10	1·7908	·5584.	13·1808.	7·3601.	9·3066.	·0759.	1·2645.
11	1·8983.	·5268.	14·9716	7·8869.	8·7798.	·0668.	1·1132
12	2·0122.	·4970.	16·8699	8·3838	8·2828	·0593.	·9880.
13	2·1329	·4688	18·8821	8·8527.	7·8140.	·0530.	·8827.
14	2·2609	·4423	21·0151.	9·2950.	7·3717.	·0476.	·7931.
15	2·3966.	·4173.	23·2760.	9·7122	6·9544	·0430.	·7160
16	2·5404.	·3936	25·6725	10·1059.	6·5608.	·0390.	·6492
17	2·6928.	·3714.	28·2129.	10·4773.	6·1894	·0354	·5907
18	2·8543	·3503	30·9057	10·8276	5·8391.	·0324.	·5393.
19	3·0256.	·3305	33·7600.	11·1581	5·5086.	·0296	·4937.
20	3·2071	·3118	36·7856.	11·4699	5·1967	·0272.	·4531.
21	3·3996.	·2942.	39·9927	11·7641.	4·9026.	·0250	·4167
22	3·6035	·2775	43·3923.	12·0416.	4·6251.	·0230	·3841.
23	3·8197	·2618.	46·9958	12·3034.	4·3633.	·0213.	·3546
24	4·0489	·2470.	50·8156.	12·5504.	4·1163	·0197.	·3280.
25	4·2919.	·2330.	54·8645	12·7834.	3·8833	·0182	·3038.
26	4·5494.	·2198	59·1564.	13·0032.	3·6635	·0169	·2817
27	4·8223	·2074.	63·7058.	13·2105	3·4561	·0157.	·2616
28	5·1117.	·1956	68·5281	13·4062.	3·2605	·0146.	·2432
29	5·4184.	·1846.	73·6398.	13·5907	3·0759	·0136.	·2263
30	5·7435.	·1741	79·0582.	13·7648	2·9018	·0126	·2108
31	6·0881	·1643.	84·8017.	13·9291.	2·7376.	·0118.	·1965
32	6·4534.	·1550.	90·8898.	14·0840	2·5826	·0110	·1834.
33	6·8406.	·1462.	97·3432.	14·2302	2·4364	·0103.	·1712
34	7·2510	·1379	104·1838.	14·3681	2·2985	·0096.	·1600.
35	7·6861.	·1301	111·4348.	14·4982	2·1684	·0090.	·1496.
36	8·1473.	·1227	119·1209.	14·6210.	2·0457.	·0084.	·1399
37	8·6361.	·1158.	127·2681	14·7368.	1·9299.	·0079.	·1310.
38	9·1543.	·1092	135·9042	14·8460	1·8206	·0074.	·1226
39	9·7035	·1031.	145·0585.	14·9491.	1·7176.	·0069.	·1149.
40	10·2857	·0972	154·7620.	15·0463.	1·6204.	·0065.	·1077.
41	10·9029.	·0917	165·0477.	15·1380	1·5287.	·0061.	·1010.
42	11·5570	·0865	175·9505	15·2245	1·4421	·0057.	·0947
43	12·2505.	·0816	187·5076.	15·3062.	1·3605.	·0053	·0888
44	12·9855.	·0770	199·7580	15·3832.	1·2835.	·0050	·0834
45	13·7646	·0727.	212·7435	15·4558	1·2108	·0047	·0783
46	14·5905.	·0685	226·5081	15·5244.	1·1423.	·0044	·0736.
47	15·4659	·0647.	241·0986	15·5890	1·0776	·0041	·0691
48	16·3939.	·0610.	256·5645	15·6500	1·0166	·0039.	·0650.
49	17·3775	·0575	272·9584	15·7076.	·9591.	·0037.	·0611.
50	18·4202.	·0543.	290·3359	15·7619.	·9048	·0034	·0574

6 per Cent.							
n	R^n	v^n	M_n	a_n	${}_np$	σ_n	f_n
51	19·5254.	·0512	308·7561.	15·8131.	·8536.	·0032	·0540.
52	20·6969.	·0483	328·2814	15·8614.	·8053.	·0030	·0508.
53	21·9387.	·0456.	348·9783	15·9070.	·7597.	·0029.	·0478.
54	23·2550	·0430	370·9170	15·9500.	·7167.	·0027.	·0449
55	24·6503	·0406.	394·1720	15·9905	·6761	·0025	·0423.
56	26·1293	·0383.	418·8223	16·0288	·6379.	·0024.	·0398.
57	27·6971	·0361	444 9517.	16·0649	·6017	·0022	·0375.
58	29·3589	·0341.	472·6488.	16·0990.	·5677.	·0021	·0353.
59	31·1205.	·0321	502·0077	16·1311	·5356.	·0020.	·0332
60	32·9877.	·0303	533·1282.	16·1614	·5052	·0019.	·0313.
61	34·9670.	·0286.	566·1159.	16·1900	·4766	·0018.	·0294
62	37·0650.	·0270.	601·0828	16·2170	·4497.	·0017.	·0277
63	39·2889.	·0255.	638·1478.	16·2425.	·4242	·0016.	·0261
64	41·6462.	·0240	677·4367.	16·2665.	·4002.	·0015.	·0246
65	44·1450.	·0227.	719·0829.	16·2891	·3775	·0014.	·0232.
66	46·7937.	·0214.	763·2278	16·3105.	·3562.	·0013	·0218
67	49·6013.	·0202.	810·0215	16·3307.	·3360	·0012	·0206.
68	52·5774.	·0190	859·6228.	16·3497.	·3170.	·0012.	·0194.
69	55·7320	·0179	912·2002.	16·3676	·2991.	·0011.	·0183.
70	59·0759	·0169	967·9322.	16·3845	·2821	·0010	·0172
71	62·6205.	·0160.	1027·0081.	16·4005	·2662.	·0010.	·0162
72	66·3777	·0151.	1089·6286.	16·4156.	·2511.	·0009	·0153.
73	70·3604.	·0142	1156·0063	16·4298.	·2369.	·0009.	·0144
74	74·5820	·0134	1226·3667.	16·4432.	·2235.	·0008	·0136.
75	79·0569	·0126	1300·9487.	16·4558	·2108	·0008.	·0128
76	83·8003	·0119	1380·0056	16·4678.	·1989.	·0007	·0121.
77	88·8284.	·0113.	1463·8059	16·4790	·1876	·0007.	·0114.
78	94·1581.	·0106	1552·6343.	16·4897.	·1770	·0006	·0107
79	99·8075	·0100	1646·7924.	16·4997.	·1670.	·0006	·0101
80	105·7960.	·0095.	1746·5999.	16·5091	·1575	·0006.	·0095
81	112·1438.	·0089	1852·3959.	16·5180	·1486	·0005	·0090.
82	118·8724.	·0084	1964·5396	16·5265.	·1402	·0005	·0085.
83	126·0047.	·0079	2083·4120	16·5344.	·1323.	·0005.	·0080
84	133·5650	·0075.	2209·4167	16·5419.	·1248.	·0005.	·0075
85	141·5789	·0071.	2342·9817	16·5489	·1177	·0004	·0071
86	150·0736	·0067.	2484·5606	16·5556	·1111.	·0004	·0067
87	159·0781.	·0063.	2634·6343.	16·5619.	·1048.	·0004.	·0063
88	168·6227	·0059	2793·7123	16·5678	·0988	·0004.	·0060.
89	178·7401	·0056.	2962·3351.	16·5734	·0932	·0003	·0056
90	189·4645	·0053.	3141·0752.	16·5787.	·0880.	·0003	·0053
91	200·8324.	·0050.	3330·5397.	16·5837.	·0830.	·0003	·0050
92	212·8823	·0047.	3531·3721.	16·5884.	·0783.	·0003.	·0047
93	225·6553.	·0044	3744·2544	16·5928	·0739.	·0003.	·0045.
94	239·1946.	·0042.	3969·9097.	16·5970.	·0697.	·0003.	·0042.
95	253·5463.	·0039	4209·1042	16·6009	·0657	·0002	·0040.
96	268·7590	·0037	4462·6505	16·6047.	·0620	·0002	·0037
97	284·8846.	·0035	4731·4095	16·6082.	·0585	·0002	·0035
98	301·9776	·0033	5016·2941	16·6115.	·0552.	·0002.	·0033
99	320·0963	·0031	5318·2718.	16·6146.	·0521.	·0002.	·0031
100	339·3021.	·0029	5638·3681.	16·6175	·0491	·0002.	·0030.

$r = \cdot 06$, its log. $\bar{3}\cdot 77815125038$ — $R = 1\cdot 06$, its log. $0\cdot 02530586526$

$p = 16\cdot\dot{6}$, its log. $1\cdot 22184874962$ — $v = \cdot 943396226415 0$, its log. $\bar{1}\cdot 97469413474$

$P = 17\cdot\dot{6}$, its log. $1\cdot 24715461488$ — $d = \cdot 0566037735849$, its log. $\bar{2}\cdot 75284538512$

7 per Cent.

n Years.	R^n Amount of £1 in n years.	v^n Present Value of £1 due n years hence.	M_n Amount of £1 per annum in n years.	a_n Present Value of £1 per annum for n years.	${}_np$ Present Value of Reversion to £1 per annum after n years.	σ_n Sinking Fund that will amount to £1 in n years.	f_n Present Value of £1 receivable once in every nth year.
1	1·07	·9346.	1·	·9346.	13·3511	1·	14·2857
2	1·1449	·8734	2·07	1·8080	12·4777.	·4831.	6·9013
3	1·2250	·8163.	3·2149	2·6243	11·6614.	·3111.	4·4436.
4	1·3108.	·7629.	4·4399	3·3872	10·8985	·2252	3·2175
5	1·4026.	·7130.	5·7507	4·1002.	10·1855	·1739.	2·4842.
6	1·5007	·6663	7·1533.	4·7665	9·5192.	·1398.	1·9971.
7	1·6058.	·6227	8·6540	5·3893.	8·8964	·1156.	1·6508.
8	1·7182.	·5820	10·2598	5·9713.	8·3144	·0975.	1·3924.
9	1·8385.	·5439	11·9780.	6·5152	7·7705.	·0835.	1·1927.
10	1·9672.	·5083	13·8164	7·0236.	7·2621	·0724.	1·0340.
11	2·1049.	·4751.	15·7836.	7·4987.	6·7870	·0634.	·9051.
12	2·2522.	·4440	17·8885.	7·9427.	6·3430	·0559	·7986
13	2·4098	·4150.	20·1406	8·3577.	5·9281.	·0497.	·7093.
14	2·5785	·3878	22·5505.	8·7455.	5·5402	·0443	·6335.
15	2·7590	·3624	25·1290	9·1079	5·1778	·0398.	·5685.
16	2·9522.	·3387	27·8881.	9·4466	4·8391.	·0359.	·5123.
17	3·1588	·3166.	30·8402	9·7632	4·5225.	·0324	·4632
18	3·3799	·2959.	33·9990	10·0591.	4·2266	·0294	·4202.
19	3·6165	·2765	37·3790.	10·3356.	3·9501	·0268.	·3822.
20	3·8697.	·2584	40·9955.	10·5940	3·6917	·0244.	·3485.
21	4·1406.	·2415	44·8652.	10·8355	3·4502.	·0223.	·3184
22	4·4304	·2257	49·0057	11·0612	3·2245.	·0204	·2915
23	4·7405	·2109	53·4361	11·2722.	3·0135	·0187	·2673
24	5·0724.	·1971	58·1767.	11·4693	2·8164.	·0172.	·2456.
25	5·4274	·1842	63·2490	11·6536.	2·6321	·0158	·2259.
26	5·8074.	·1722.	68·6765.	11·8258.	2·4599	·0146.	·2080
27	6·2139.	·1609	74·4838	11·9867	2·2990	·0134	·1918.
28	6·6488	·1504	80·6977.	12·1371	2·1486	·0124.	·1770
29	7·1143.	·1406.	87·3465	12·2777.	2·0080	·0114	·1636.
30	7·6123.	·1314.	94·4608.	12·4090	1·8767.	·0106.	·1512
31	8·1451	·1228.	102·0730	12·5318	1·7539	·0098.	·1400.
32	8·7153.	·1147	110·2182.	12·6466.	1·6392.	·0091.	·1296
33	9·3253	·1072	118·9334	12·7538.	1·5319	·0084	·1201
34	9·9781	·1002	128·2588.	12·8540	1·4317	·0078.	·1114.
35	10·6766.	·0937.	138·2369.	12·9477.	1·3380	·0072	·1033
36	11·4239	·0875	148·9135.	13·0352	1·2505	·0067	·0959
37	12·2236	·0818	160·3374	13·1170	1·1687.	·0062	·0891.
38	13·0793.	·0765.	172·5610	13·1935.	1·0922	·0058.	·0828.
39	13·9948	·0715.	185·6403.	13·2649	1·0208.	·0054.	·0770.
40	14·9745.	·0668.	199·6351	13·3317	·9540	·0050	·0716.
41	16·0227.	·0624	214·6096.	13·3941	·8916.	·0047.	·0666.
42	17·1443.	·0583	230·6322	13·4524	·8333.	·0043	·0619
43	18·3444.	·0545	247·7765.	13·5070.	·7788.	·0040	·0577.
44	19·6285.	·0509	266·1209.	13·5579	·7278	·0038.	·0537.
45	21·0025.	·0476	285·7493	13·6055	·6802.	·0035.	·0500.
46	22·4726	·0445.	306·7518.	13·6500	·6357.	·0033.	·0466.
47	24·0457	·0416.	329·2244.	13·6916	·5941	·0030	·0434.
48	25·7289	·0389.	353·2701.	13·7305.	·5552	·0028	·0404
49	27·5299	·0363	378·9990.	13·7668.	·5189	·0026	·0377.
50	29·4570	·0339	406·5289	13·8007	·4850.	·0025.	·0351

7 per Cent.

n	R^n	v^n	M_n	a_n	${}_np$	σ_n	f_n
51	31·5190	·0317	435·9860.	13·8325.	·4532	·0023.	·0328
52	33·7253	·0297.	467·5050.	13·8621	·4236.	·0021	·0306.
53	36·0861	·0277	501·2303	13·8898	·3959.	·0020.	·0285
54	38·6122.	·0259.	537 3164	13·9157	·3700.	·0019.	·0266.
55	41·3150	·0242	575·9286.	13·9399	·3458.	·0017	·0248
56	44·2071.	·0226	617·2436.	13·9626.	·3232.	·0016	·0231
57	47·3015	·0211	661·4506	13·9837	·3020	·0015	·0216.
58	50·6127.	·0198.	708·7522.	14·0035.	·2823.	·0014	·0202.
59	54·1555	·0185.	759·3648	14·0219	·2638.	·0013	·0188
60	57·9464	·0173.	813·5204.	14·0392.	·2465	·0012	·0176.
61	62·0027.	·0161	871·4668	14·0553	·2304	·0011	·0164.
62	66·3429.	·0151.	933·4695.	14·0704.	·2153	·0011.	·0153
63	70·9869.	·0141.	999·8124.	14·0845.	·2012	·0010	·0143.
64	75·9559	·0132.	1070·7992	14·0976	·1881.	·0009	·0133
65	81·2729.	·0123	1146·7552.	14·1099	·1758.	·0009.	·0125.
66	86·9620.	·0115.	1228·0280	14·1214	·1643.	·0008	·0116
67	93·0493.	·0107	1314·9900.	14·1322.	·1535	·0008.	·0109.
68	99·5627	·0100	1408·0393.	14·1422	·1435.	·0007	·0101
69	106·5321	·0094.	1507·6020	14·1516	·1341.	·0007.	·0095.
70	113·9894.	·0088.	1614·1342.	14·1604.	·1253	·0006	·0089.
71	121·9686	·0082.	1728·1236.	14·1686.	·1171	·0006.	·0083.
72	130·5065.	·0077.	1850·0922	14·1763.	·1095.	·0005	·0077
73	139·6419	·0072.	1980·5987.	14·1834	·1023	·0005	·0072
74	149·4168	·0067.	2120·2406.	14·1901	·0956	·0005.	·0067
75	159·8760	·0063.	2269·6574	14·1964.	·0894.	·0004	·0063.
76	171·0673	·0058	2429·5334	14·2022	·0835	·0004	·0059.
77	183·0421.	·0055.	2600·6008.	14·2077.	·0780	·0004.	·0055.
78	195·8550.	·0051	2783·6428	14·2128.	·0729	·0004.	·0051
79	209·5648	·0048.	2979·4978	14·2175	·0682.	·0003	·0048.
80	224·2344.	·0045.	3189·0627.	14·2220	·0637	·0003	·0045.
81	239·9308.	·0042.	3413·2971.	14·2262.	·0595	·0003.	·0042.
82	256·7260.	·0039.	3653·2279.	14·2301.	·0556	·0003.	·0039
83	274·6968.	·0036	3909·9538	14·2337	·0520	·0003.	·0037.
84	293·9255	·0034	4184·6506.	14·2371	·0486	·0002	·0034
85	314·5003	·0032.	4478·5761	14·2403.	·0454	·0002	·0032.
86	336·5154.	·0030.	4793·0764	14·2433.	·0425.	·0002	·0030.
87	360·0714	·0028.	5129·5918.	14·2460	·0397.	·0002.	·0028.
88	385·2764	·0026.	5489·6632	14·2486	·0371.	·0002.	·0026
89	412·2458.	·0024	5874·9397.	14·2511.	·0347.	·0002.	·0024
90	441·1030.	·0023.	6287·1854	14·2533	·0324.	·0002.	·0023.
91	471·9802.	·0021	6728·2884	14·2554	·0303.	·0001	·0021
92	505·0188	·0020.	7200·2686.	14·2574	·0283.	·0001	·0020.
93	540·3701	·0019.	7705·2874.	14·2593.	·0264	·0001	·0019.
94	578·1960	·0017	8245·6575	14·2610	·0247	·0001	·0017
95	618·6697	·0016	8823·8535	14·2626	·0231.	·0001	·0016
96	661·9766	·0015	9442·5233.	14·2641	·0216.	·0001	·0015
97	708·3150.	·0014	10104·4999	14·2655	·0202.	·0001.	·0014
98	757·8970	·0013	10812·8149	14·2669.	·0188	·0001.	·0013
99	810·9498	·0012	11570·7120.	14·2681.	·0176	·0001.	·0012
100	867·7163	·0012.	12381·6618.	14·2693.	·0165.	·0001.	·0012.

$r = \cdot 07$, its log. $\bar{2}\cdot 84509804001$ — $R = 1\cdot 07$, its log. $0\cdot 0293837777$

$p = 14\cdot 285714$, its log. $1\cdot 15490195999$ — $v = \cdot 93457943925$, its log. $\bar{1}\cdot 9706162223$

$P = 15\cdot 285714$, its log. $1\cdot 18428573767$ — $d = \cdot 06542056075$, its log. $\bar{2}\cdot 8157142623$

8 per Cent.

n Years.	R^n Amount of £1 in n years.	v^n Present Value of £1 due n years hence.	M_n Amount of £1 per annum in n years.	a_n Present Value of £1 per annum for n years.	${}_np$ Present Value of Reversion to £1 per annum after n years.	σ_n Sinking Fund that will amount to £1 in n years.	f_n Present Value of £1 receivable once in every nth year.
1	1·08	·9259	1·	·9259	11·5741.	1·	12·5
2	1·1664	·8573	2·08	1·7833.	10·7167	·4808.	6·0096
3	1·2597	·7938	3·2464	2·5771.	9·9229	·3080	3·8504
4	1·3605.	·7350	4·5061	3·3121	9·1879.	·2219	2·7740
5	1·4693	·6806.	5·8666	3·9927	8·5073.	·1705.	2·1307
6	1·5869.	·6302.	7·3359	4·6229.	7·8771	·1363	1·7039
7	1·7138	·5835.	8·9228	5·2064.	7·2936	·1121.	1·4009
8	1·8509	·5403.	10·6366	5·7466	6·7534.	·0940	1·1752.
9	1·9990	·5002	12·4876.	6·2469.	6·2531	·0801.	1·0010.
10	2·1589	·4632.	14·4866.	6·7101.	5·7899	·0690	·8629.
11	2·3316	·4289.	16·6455.	7·1390.	5·3610	·0601.	·7510.
12	2·5182.	·3971	18·9771	7·5361.	4·9639	·0527.	·6587.
13	2·7196	·3677.	21·4953.	7·9038.	4·5962	·0465	·5815
14	2·9372.	·3405.	24·2149	8·2442	4·2558.	·0413.	·5162
15	3·1722.	·3152	27·1521	8·5595.	3·9405	·0368	·4604.
16	3·4259	·2919.	30·3243.	8·8514.	3·6486	·0330.	·4122
17	3·7000	·2703.	33·7502	9·1216	3·3784.	·0296	·3704.
18	3·9960	·2502	37·4502	9·3719.	3·1281	·0267	·3338.
19	4·3157	·2317	41·4463.	9·6036.	2·8964	·0241	·3016.
20	4·6610.	·2145	45·7620.	9·8181	2·6819.	·0219.	·2732.
21	5·0338	·1987.	50·4229	10·0168	2·4832.	·0198	·2479
22	5·4365	·1839	55·4568.	10·2007	2·2993.	·0180	·2254
23	5·8715.	·1703	60·8933.	10·3711.	2·1289	·0164	·2053.
24	6·3412.	·1577.	66·7648.	10·5288.	1·9712	·0150.	·1872
25	6·8485.	·1460	73·1059	10·6748.	1·8252	·0137.	·1710.
26	7·3964.	·1352	79·9544	10·8100.	1·6900	·0125	·1563
27	7·9881.	·1252.	87·3508.	10·9352.	1·5648	·0114	·1431
28	8·6271	·1159	95·3388	11·0511.	1·4489	·0105.	·1311
29	9·3173.	·1073	103·9659	11·1584	1·3416.	·0096	·1202
30	10·0627.	·0994.	113·2832	11·2578.	1·2422	·0088	·1103
31	10·8677.	·0920	123·3459.	11·3498.	1·1502	·0081	·1013
32	11·7371.	·0852	134·2135	11·4350.	1·0650	·0075.	·0931
33	12·6760	·0789.	145·9506	11·5139.	·9861	·0069.	·0856
34	13·6901	·0730	158·6267.	11·5869	·9131.	·0063	·0788
35	14·7853	·0676	172·3168	11·6546.	·8454	·0058	·0725
36	15·9682.	·0626	187·1021	11·7172.	·7828	·0053	·0668
37	17·2456	·0580.	203·0703	11·7752.	·7248	·0049	·0616.
38	18·6253.	·0537.	220·3159	11·8289.	·6711	·0045	·0567
39	20·1153.	·0497	238·9412	11·8786.	·6214	·0042.	·0523
40	21·7245	·0460	259·0565	11·9246	·5754.	·0039.	·0483.
41	23·4625.	·0426	280·7810	11·9672	·5328.	·0036.	·0445
42	25·3395.	·0395.	304·2435	12·0067.	·4933	·0033.	·0411.
43	27·3666	·0365	329·5830	12·0432	·4568.	·0030	·0379
44	29·5560.	·0338	356·9496	12·0771.	·4229	·0028	·0350
45	31·9204	·0313	386·5056	12·1084	·3916.	·0026.	·0323
46	34·4741.	·0290	418·4261.	12·1374	·3626.	·0024.	·0299.
47	37·2320	·0269.	452·9002.	12·1643.	·3357	·0022	·0276
48	40·2106.	·0249.	490·1322.	12·1891	·3109.	·0020	·0255
49	43·4274	·0230	530·3427	12·2122.	·2878	·0019.	·0236.
50	46·9016	·0213	573·7702.	12·2335.	·2665	·0017	·0218.

8 per Cent.

n	R^n	v^n	M_n	a_n	$_np$	σ_n	f_n
51	50·6537	·0197	620·6718.	12·2532	·2468.	·0016	·0201
52	54·7060	·0183.	671·3255	12·2715	·2285.	·0015.	·0186
53	59·0825	·0169	726·0316.	12·2884	·2116.	·0014.	·0172
54	63·8091	·0157.	785·1141.	12·3041	·1959.	·0013.	·0159
55	68·9139.	·0145	848·9232	12·3186	·1814.	·0012.	·0147
56	74·4270.	·0134	917·8371.	12·3321.	·1680.	·0011.	·0136
57	80·3811	·0124	992·2640	12·3445.	·1555	·0010	·0126.
58	86·8116	·0115	1072·6451	12·3560	·1440.	·0009	·0117.
59	93·7565	·0107.	1159·4568.	12·3667.	·1333	·0009.	·0108.
60	101·2571.	·0099.	1253·2133.	12·3766.	·1234	·0008.	·0100.
61	109·3576	·0091	1354·4704.	12·3857.	·1143	·0007	·0092
62	118·1062	·0085.	1463·8280.	12·3942.	·1058	·0007.	·0085
63	127·5547	·0078	1581·9342	12·4020	·0980.	·0006	·0079
64	137·7591	·0073.	1709·4890.	12·4093.	·0907	·0006.	·0073
65	148·7798	·0067	1847·2481.	12·4160.	·0840.	·0005	·0068.
66	160·6822	·0062	1996·0279	12·4222	·0778.	·0005	·0063.
67	173·5368	·0058.	2156·7102.	12·4280.	·0720	·0005.	·0058.
68	187·4198.	·0053	2330·2470.	12·4333	·0667.	·0004	·0054.
69	202·4133	·0049	2517·6667	12·4382	·0618.	·0004.	·0050.
70	218·6064	·0046.	2720·0801.	12·4428	·0572.	·0004.	·0046.
71	236·0949	·0042	2938·6865.	12·4471.	·0529	·0003	·0043.
72	254·9825	·0039	3174·7814.	12·4510.	·0490	·0003	·0039
73	275·3811	·0036	3429·7639	12·4546	·0454.	·0003.	·0036
74	297·4116	·0034.	3705·1450	12·4580.	·0420	·0003.	·0034.
75	321·2045	·0031	4002·5566	12·4611.	·0389	·0002	·0031
76	346·9009.	·0029.	4323·7612.	12·4640.	·0360	·0002	·0029.
77	374·6530.	·0027.	4670·6620	12·4666	·0334.	·0002	·0027.
78	404·6252	·0025.	5045·3150	12·4691	·0309.	·0002.	·0025.
79	436·9952	·0023.	5449·9402	12·4714.	·0286	·0002.	·0023.
80	471·9548	·0021	5886·9354	12·4735	·0265.	·0002.	·0021
81	509·7112	·0020.	6358·8903.	12·4755.	·0245	·0002.	·0020.
82	550·4881	·0018	6868·6015.	12·4773.	·0227	·0001	·0018
83	594·5272.	·0017.	7419·0896	12·4790.	·0210	·0001	·0017.
84	642·0893	·0016.	8013·6168.	12·4805	·0195.	·0001	·0016.
85	693·4565.	·0014	8655·7061	12·4820.	·0180	·0001	·0014
86	748·9330	·0013	9349·1626	12·4833	·0167.	·0001	·0013
87	808·8476	·0012	10098·0956	12·4845	·0155.	·0001.	·0012
88	873·5555.	·0011	10906·9433.	12·4857.	·0143	·0001.	·0011
89	943·4399.	·0011.	11780·4987	12·4868.	·0132	·0001.	·0011.
90	1018·9151.	·0010.	12723·9386	12·4877	·0123.	·0001.	·0010.
91	1100·4283.	·0009	13742·8537	12·4886	·0114.	·0001.	·0009
92	1188·4626.	·0008	14843·2820	12·4895.	·0105	·0001.	·0008
93	1283·5396.	·0008.	16031·7446.	12·4903.	·0097	·0001.	·0008.
94	1386·2227	·0007	17315·2841	12·4910.	·0090	·0001.	·0007
95	1497·1205	·0007.	18701·5069.	12·4917.	·0083	·0001.	·0007.
96	1616·8902.	·0006	20198·6274	12·4923.	·0077	·00005.	·0006
97	1746·2414	·0006.	21815·5176.	12·4928	·0072.	·00005.	·0006.
98	1885·9407	·0005	23561·7590	12·4934.	·0066	·00004	·0005
99	2036·8160.	·0005.	25447·6997	12·4939.	·0061	·00004.	·0005.
100	2199·7613.	·0005.	27484·5157	12·4943	·0057.	·00004.	·0005.

r = ·08, its log. $\bar{1}$·90308998699
p = 12·5, its log. 1·09691001301
P = 13·5, its log. 1·13033376850

R = 1·08, its log. 0·0334237555
v = ·9259259, its log. $\bar{1}$·9665762445
d = ·074074074, its log. $\bar{2}$·8696662315

10 per Cent.

n Years.	R^n Amount of £1 in n years.	v^n Present Value of £1 due n years hence.	M_n Amount of £1 per annum in n years.	a_n Present Value of £1 per annum for n years.	${}_np$ Present Value of Reversion to £1 per annum after n years.	σ_n Sinking Fund that will amount to £1 in n years.	f_n Present Value of £1 receivable once in every nth year.
1	1·1	·9091.	1·	·9091.	9·0909	1.	10·
2	1·21	·8264	2·1	1·7355	8·2645.	·4762.	4·7619
3	1·331	·7315	3·31	2·6849.	7·3151	·3021	3·0211
4	1·4641	·6830	4·641	3·1699.	6·8301	·2155.	2·1547
5	1·6105	·6209	6·1051	3·7908.	6·2092	·1638.	1·6380.
6	1·7716.	·5645.	7·7156	4·3553.	5·6447	·1296	1·2961.
7	1·9487	·5132.	9·4872.	4·8684	5·1316.	·1054	1·0541.
8	2·1436.	·4665	11·4359.	5·3349	4·6651.	·0874	·8744
9	2·3579	·4241.	13·5795.	5·7590	4·2410.	·0736	·7364
10	2·5937	·3855	15·9374	6·1446.	3·8554	·0627	·6275.
11	2·8531	·3505.	18·5312.	6·4951.	3·5049	·0540.	·5396
12	3·1384	·3186	21·3843.	6·8137.	3·1863	·0468.	·4676
13	3·4523.	·2897.	24·5227	7·1034.	2·8966	·0408.	·4078.
14	3·7975.	·2633	27·9750.	7·3667.	2·6333	·0357	·3575.
15	4·1772	·2394.	31·7725.	7·6061.	2·3939	·0315.	·3147
16	4·5950.	·2176	35·9497	7·8237	2·1763.	·0278	·2782.
17	5·0545.	·1978	40·5447	8·0216.	1·9784	·0247.	·2466
18	5·5599	·1799.	45·5992.	8·2014	1·7986.	·0219	·2193
19	6·1159	·1635	51·1591.	8·3649	1·6351.	·0195	·1955.
20	6·7275.	·1486	57·2750.	8·5136.	1·4864	·0175.	·1746.
21	7·4002	·1351	64·0025.	8·6487.	1·3513	·0156	·1562
22	8·1403.	·1228	71·4027	8·7715	1·2285.	·0140	·1401.
23	8·9543	·1117.	79·5430	8·8832	1·1168.	·0126.	·1257
24	9·8497	·1015	88·4973	8·9847	1·0153.	·0113.	·1130.
25	10·8347	·0923.	98·3471.	9·0770	·9230.	·0102.	·1017.
26	11·9182.	·0839	109·1818.	9·1609	·8391.	·0092.	·0916.
27	13·1100.	·0763.	121·0999	9·2372	·7628.	·0083.	·0826.
28	14·4210.	·0693	134·2099	9·3066.	·6934	·0075.	·0745
29	15·8631.	·0630	148·6309	9·3696	·6304.	·0067	·0673.
30	17·4494	·0573	164·4940	9·4269	·5731.	·0061.	·0608.
31	19·1943	·0521.	181·9434	9·4790	·5210.	·0055.	·0550.
32	21·1138.	·0474.	201·1378.	9·5264.	·4736	·0050.	·0497
33	23·2252.	·0431.	222·2515	9·5694	·4306.	·0045.	·0450.
34	25·5477.	·0391	245·4767.	9·6086.	·3914	·0041.	·0407
35	28·1024	·0356.	271·0244.	9·6442.	·3558	·0037.	·0369.
36	30·9127.	·0323	299·1268	9·6765	·3235.	·0033	·0334
37	34·0039	·0294	330·0395.	9·7059	·2941.	·0030	·0303.
38	37·4043	·0267	364·0434	9·7327.	·2673	·0027	·0275.
39	41·1448.	·0243	401·4478.	9·7570.	·2430	·0025.	·0249
40	45·2593.	·0221.	442·5926.	9·7791.	·2209	·0023.	·0226.
41	49·7852.	·0201.	487·8518	9·7991	·2009.	·0020	·0205.
42	54·7637.	·0183.	537·6370.	9·8174.	·1826	·0019.	·0186.
43	60·2401.	·0166	592·4007.	9·8340.	·1660	·0017.	·0169.
44	66·2641.	·0151.	652·6408.	9·8491.	·1509	·0015	·0153
45	72·8905.	·0137	718·9048	9·8628	·1372.	·0014.	·0139
46	80·1795	·0125.	791·7953	9·8753.	·1247	·0013.	·0126
47	88·1975.	·0113	871·9749.	9·8866	·1134.	·0011	·0115.
48	97·0172	·0103	960·1723	9·8969	·1031.	·0010	·0104
49	106·7190.	·0094.	1057·1896.	9·9063.	·0937	·0009	·0095.
50	117·3909.	·0085	1163·9085	9·9148	·0852.	·0009.	·0086.

10 per Cent.

n	R^n	v^n	M_n	a_n	$_np$	σ_n	f_n
51	129·1299	·0077	1281·2994.	9·9226.	·0774	·00078	·00780
52	142·0429	·0070	1410·4293	9·9296.	·0704	·00071.	·00709
53	156·2472	·0064	1552·4723.	9·9360.	·0640	·00064	·00644
54	171·8719	·0058	1708·7195.	9·9418	·0582.	·00059.	·00585
55	189·0591	·0053.	1880·5914	9·9471	·0529.	·00053	·00532.
56	207·9651.	·0048	2069·6506.	9·9519	·0481.	·00048	·00483
57	228·7616.	·0044.	2277·6156	9·9563.	·0437	·00044.	·00439
58	251·6377	·0040.	2506·3772.	9·9603.	·0397	·00040.	·00399.
59	276·8015.	·0036	2758·0149	9·9639.	·0361	·00036	·00363.
60	304·4816	·0033.	3034·8164.	9·9672.	·0328	·00033.	·00330.
61	334·9298	·0030.	3339·2980	9·9701	·0299.	·00030.	·00299
62	368·4228.	·0027	3674·2278	9·9729.	·0271	·00027	·00272
63	405·2651.	·0025.	4042·6506	9·9753	·0247.	·00025.	·00247
64	445·7916.	·0022	4447·9157.	9·9776.	·0224	·00022	·00225.
65	490·3707	·0020	4893·7073.	9·9796	·0204.	·00020	·00204
66	539·4078.	·0019.	5384·0780.	9·9815.	·0185	·00019.	·00186.
67	593·3486.	·0017.	5923·4858.	9·9831	·0169.	·00017.	·00169.
68	652·6834	·0015	6516·8344.	9·9847.	·0153	·00015	·00153
69	717·9518.	·0014.	7169·5178.	9·9861.	·0139	·00014.	·00139
70	789·7470.	·0013.	7887·4696.	9·9873	·0127.	·00013.	·00127.
71	868·7217.	·0012.	8677·2165	9·9885.	·0115	·00012.	·00115
72	955·5938	·0010	9545·9382.	9·9895	·0105.	·00010	·00105.
73	1051·1532.	·0010.	10501·5320.	9·9905.	·0095	·00010.	·00095
74	1156·2685	·0009.	11552·6852.	9·9914.	·0086	·00009.	·00087.
75	1271·8954.	·0008.	12708·9537	9·9921	·0079.	·00008.	·00079.
76	1399·0849	·00071	13980·8491.	9·9929.	·0071	·00007	·00072.
77	1538·9934.	·00065.	15379·9340.	9·9935	·0065.	·00007.	·00065
78	1692·8927	·00059	16918·9274.	9·9941.	·0059	·00006.	·00059
79	1862·1820	·00054.	18611·8201	9·9946	·0054.	·00005	·00054.
80	2048·4002	·00049.	20474·0021	9·9951	·0049.	·00005.	·00049.
81	2253·2402	·00044	22522·4024.	9·9956.	·0044	·00004	·00044
82	2478·5643.	·00040	24775·6426.	9·9960.	·0040	·00004	·00040
83	2726·4207.	·00037.	27254·2069.	9·9963	·0037.	·00004.	·00037.
84	2999·0628.	·00033	29980·6275	9·9967.	·0033	·00003	·00033
85	3298·9690	·00030	32979·6903.	9·9970.	·0030	·00003	·00030
86	3628·8659	·00028.	36278·6593	9·9972	·0028.	·00003.	·00028.
87	3991·7525	·00025	39907·5253.	9·9975.	·0025	·00003.	·00025
88	4390·9278.	·00023.	43899·2778.	9·9977	·0023.	·00002	·00023.
89	4830·0206.	·00021.	48290·2056.	9·9979	·0021.	·00002	·00021.
90	5313·0226	·00019.	53120·2261	9·9981	·0019.	·00002.	·00019.
91	5844·3249.	·00017	58433·2487	9·9983.	·0017	·00002.	·00017
92	6428·7574.	·00016.	64277·5736	9·9984	·0016.	·00002.	·00016.
93	7071·6331.	·00014	70706·3310.	9·9986.	·0014	·00001	·00014
94	7778·7964	·00013.	77777·9641.	9·9987	·0013.	·00001	·00013.
95	8556·6760	·00012.	85556·7605.	9·9988	·0012.	·00001	·00012.
96	9412·3437.	·00011.	94113·4365	9·9989	·0011.	·00001	·00011.
97	10353·5780	·00010.	103525·7802.	9·9990	·0010.	·00001.	·00010.
98	11388·9358	·00009.	113879·3582.	9·9991	·0009.	·00001.	·00009.
99	12527·8294.	·00008.	125268·2940.	9·9992	·0008.	·00001.	·00008.
100	13780·6123	·00007	137796·1234.	9·9993.	·0007	·00001.	·00007

$r = \cdot 1$, its log. $\bar{1}\cdot 0000000000$ — $R = 1\cdot 1$, its log. $0\cdot 04139268516$.
$p = 10$, its log. $1\cdot 00000000000$ — $v = \cdot 9\dot{0}9\dot{0}$, its log. $\bar{1}\cdot 95860731484$
$P = 11$, its log. $1\cdot 04139268516$ — $d = \cdot 0\dot{9}0\dot{9}$, its log. $\bar{2}\cdot 95860731484$

TABLE

Showing the price that may be given for an annuity in order that the purchaser may obtain annually out of the annuity—1st, interest on his purchase-money at a certain rate; and 2ndly, such a surplus as, invested at another rate, may reinstate the purchase-money at the end of the term.

If σ_n represent the annual sinking fund, which, at the rate r, will amount to £1 in n years; and

ρ be the rate of interest required annually by the purchaser—

Every £1 of the annuity is worth $\frac{1}{\sigma_n + \rho}$.

Values of ANNUITIES, *the Rate of* INVESTMENT *being* 3 PER CENT., *and the Rate of* INTEREST *required* 3½, 4, 5, 6, 7, *or* 8 PER CENT.

	RATES OF AVAILABLE INTEREST.					
	3½.	4.	5.	6.	7.	8.
1	·966	·962	·952	·943	·935	·926
2	1·895	1·878	1·843	1·810	1·777	1·746
3	2·789	2·751	2·677	2·607	2·541	2·478
4	3·649	3·584	3·460	3·344	3·236	3·135
5	4·477	4·379	4·195	4·027	3·871	3·726
6	5·274	5·139	4·888	4·660	4·452	4·263
7	6·042	5·865	5·540	5·249	4·987	4·750
8	6·782	6·559	6·156	5·799	5·481	5·196
9	7·494	7·224	6·737	6·312	5·937	5·604
10	8·181	7·860	7·287	6·792	6·360	5·980
11	8·843	8·469	7·808	7·242	6·753	6·326
12	9·482	9·053	8·301	7·665	7·119	6·646
13	10·098	9·613	8·770	8·063	7·461	6·943
14	10·692	10·150	9·214	8·437	7·781	7·219
15	11·266	10·665	9·637	8·790	8·080	7·476
16	11·819	11·159	10·039	9·123	8·361	7·715
17	12·353	11·634	10·422	9·438	8·624	7·939
18	12·869	12·091	10·786	9·736	8·872	8·149
19	13·367	12·529	11·134	10·019	9·106	8·346
20	13·847	12·951	11·466	10·286	9·327	8·531
21	14·312	13·356	11·782	10·541	9·535	8·705
22	14·761	13·746	12·085	10·782	9·733	8·869
23	15·194	14·122	12·374	11·012	9·919	9·024
24	15·613	14·483	12·651	11·230	10·096	9·170
25	16·018	14·831	12·915	11·438	10·264	9·309
26	16·410	15·166	13·169	11·636	10·423	9·439
27	16·786	15·488	13·411	11·826	10·575	9·564
28	17·155	15·799	13·644	12·006	10·719	9·681
29	17·509	16·099	13·867	12·178	10·856	9·793
30	17·851	16·388	14·081	12·343	10·987	9·899
31	18·182	16·667	14·286	12·500	11·111	10·000
32	18·502	16·936	14·483	12·651	11·230	10·096
33	18·813	17·195	14·672	12·795	11·343	10·188
34	19·112	17·445	14·854	12·933	11·452	10·275
35	19·403	17·686	15·029	13·065	11·555	10·358
36	19·684	17·920	15·197	13·192	11·654	10·438
37	19·955	18·145	15·358	13·314	11·748	10·514
38	20·219	18·362	15·514	13·430	11·840	10·587
39	20·473	18·572	15·663	13·542	11·927	10·656
40	20·720	18·775	15·807	13·650	12·010	10·722
41	20·959	18·971	15·946	13·753	12·090	10·786
42	21·190	19·160	16·079	13·852	12·167	10·847
43	21·414	19·343	16·208	13·947	12·240	10·905
44	21·631	19·520	16·332	14·039	12·311	10·961
45	21·841	19·691	16·451	14·127	12·379	11·015

Table of Values (continued).

	Rates of Available Interest.					
	3½.	4.	5.	6.	7.	8.
46	22·045	19·856	16·567	14·212	12·444	11·067
47	22·242	20·016	16·678	14·294	12·506	11·116
48	22·433	20·170	16·785	14·372	12·566	11·163
49	22·618	20·320	16·888	14·448	12·624	11·209
50	22·797	20·465	16·988	14·521	12·680	11·253
51	22·971	20·604	17·084	14·591	12·733	11·295
52	23·139	20·739	17·177	14·659	12·785	11·336
53	23·302	20·870	17·267	14·724	12·835	11·375
54	23·460	20·997	17·353	14·787	12·882	11·412
55	23·613	21·120	17·437	14·848	12·928	11·448
56	23·762	21·238	17·518	14·907	12·973	11·483
57	23·906	21·353	17·596	14·963	13·015	11·517
58	24·045	21·465	17·671	15·018	13·057	11·549
59	24·180	21·572	17·744	15·070	13·096	11·580
60	24·311	21·676	17·815	15·121	13·135	11·610
61	24·438	21·777	17·883	15·170	13·172	11·639
62	24·562	21·875	17·949	15·218	13·208	11·667
63	24·681	21·970	18·013	15·263	13·242	11·694
64	24·797	22·062	18·074	15·308	13·275	11·720
65	24·909	22·150	18·134	15·350	13·307	11·745
66	25·018	22·237	18·191	15·391	13·337	11·769
67	25·124	22·320	18·247	15·431	13·368	11·792
68	25·226	22·401	18·301	15·470	13·397	11·815
69	25·325	22·479	18·353	15·507	13·425	11·836
70	25·422	22·555	18·404	15·543	13·452	11·857
71	25·515	22·628	18·453	15·578	13·478	11·878
72	25·606	22·699	18·500	15·612	13·504	11·897
73	25·693	22·768	18·546	15·644	13·528	11·916
74	25·778	22·835	18·590	15·676	13·552	11·934
75	25·861	22·900	18·633	15·706	13·574	11·952
76	25·941	22·963	18·675	15·736	13·596	11·969
77	26·019	23·024	18·715	15·765	13·618	11·986
78	26·095	23·083	18·754	15·792	13·638	12·002
79	26·168	23·140	18·792	15·819	13·658	12·017
80	26·239	23·196	18·828	15·845	13·678	12·032
81	26·307	23·249	18·864	15·870	13·696	12·046
82	26·374	23·301	18·898	15·894	13·714	12·060
83	26·439	23·352	18·931	15·918	13·732	12·074
84	26·502	23·401	18·963	15·941	13·749	12·087
85	26·563	23·448	18·995	15·962	13·765	12·100
86	26·622	23·495	19·025	15·984	13·781	12·112
87	26·679	23·539	19·054	16·005	13·796	12·124
88	26·735	23·583	19·083	16·025	13·811	12·135
89	26·789	23·625	19·110	16·044	13·826	12·146
90	26·842	23·666	19·137	16·063	13·840	12·157
91	26·893	23·705	19·164	16·081	13·854	12·168
92	26·942	23·743	19·188	16·099	13·866	12·178
93	26·990	23·781	19·212	16·116	13·879	12·188
94	27·036	23·817	19·236	16·132	13·891	12·197
95	27·081	23·852	19·258	16·148	13·903	12·206
96	27·125	23·886	19·281	16·164	13·915	12·215
97	27·168	23·919	19·302	16·179	13·926	12·224
98	27·209	23·950	19·323	16·194	13·937	12·232
99	27·250	23·981	19·343	16·208	13·947	12·240
100	27·288	24·011	19·362	16·222	13·957	12·248

Comparative Value of different Stocks, and the Rate of Interest produced by them at various Prices

Consols at even eighths.	2½ per Cent Stock.	3¼.	3½.	4.	5.	6.	7.	8.	10.	Year's Purchase.	Rate of Interest per cent.	
100	83·333	109·333	116·667	133·333	166·667	200·	233·333	266·667	333·333	33·3333	3·	3 per cent.
99⅞	·229	·198	·521	·167	·458	199·75	·042	·333	333·917	·2917	3·00375	
99¾	·125	·063	·375	·000	·250	·50	232·750	·000	·500	·2500	3·00752	
99⅝	·021	107·927	·229	132·833	·042	·25	·458	265·667	·083	·2083	3·01129	
99½	82·917	·792	·083	·667	165·833	·00	·167	·333	331·667	·1667	3·01517	
99⅜	·813	·656	115·938	·500	·625	198·75	231·875	·000	·250	·1250	3·01886	
99¼	·708	·521	·792	·333	·417	·50	·583	264·667	330·833	·0833	3·02267	
99⅛	·604	·385	·646	·167	·208	·25	·292	·333	·417	·0417	3·02648	
99	·500	·250	·500	·000	·000	·00	·000	·000	·000	·0000	3·03030	
98⅞	·396	·114	·354	131·833	164·792	197·75	230·708	263·667	329·583	32·9583	3·03413	
98¾	·292	106·979	·208	·667	·583	·50	·417	·333	·167	·9167	3·03797	
98⅝	·188	·844	·063	·500	·375	·25	·125	·000	328·750	·8750	3·04182	
98½	·083	·708	114·917	·333	·167	·00	229·833	262·667	·333	·8333	3·04568	
98⅜	81·979	·573	·771	·167	163·958	196·75	·542	·333	327·917	·7917	3·04956	
98¼	·875	·437	·625	·000	·750	·50	·250	·000	·500	·7500	3·05344	
98⅛	·771	·302	·479	130·833	·542	·25	228·958	261·667	·083	·7083	3·05732	
98	·667	·167	·333	·667	·333	·00	·667	·333	326·667	·6667	3·06122	
97⅞	·563	·031	·188	·500	·125	195·75	·375	·000	·250	·6250	3·06513	
97¾	·458	105·896	·042	·333	162·917	·50	·083	260·667	325·833	·5833	3·06905	
97⅝	·354	·760	113·896	·167	·708	·25	227·792	·333	·417	·5417	3·07298	
97½	·250	·625	·750	·000	·500	·00	·500	·000	·000	·5000	3·07692	
97⅜	·146	·490	·604	129·833	·292	194·75	·208	259·667	324·583	·4583	3·08087	
97¼	·042	·354	·458	·667	·083	·50	226·917	·333	·167	·4167	3·08483	
97⅛	80·938	·219	·313	·500	161·875	·25	·625	·000	323·750	·3750	3·08880	
97	·833	·083	·167	·333	·667	·00	·333	258·667	·333	·3333	3·09278	
96⅞	·729	104·948	·021	·167	·458	193·75	·042	·333	322·917	·2917	3·09677	
96¾	·625	·813	112·875	·000	·250	·50	225·750	·000	·500	·2500	3·10078	
96⅝	·521	·677	·729	128·833	·042	·25	·458	257·667	·083	·2083	3·10479	
96½	·417	·542	·583	·667	160·833	·00	·167	·333	321·667	·1667	3·10881	
96⅜	·313	·406	·438	·500	·625	192·75	224·875	·000	·250	·1250	3·11284	
96¼	·208	·271	·292	·333	·417	·50	·583	256·667	320·833	·0833	3·11688	
96⅛	·104	·135	·146	·167	·208	·25	·292	·333	·417	·0417	3·12094	
96	·000	·000	·000	·000	·000	·00	·000	·000	·000	·0000	3·12500	3½
95⅞	79·896	103·864	111·854	127·833	159·792	191·75	223·708	255·667	319·583	31·9583	3·12907	
95¾	·792	·729	·708	·667	·583	·50	·417	·333	·167	·9167	3·13316	
95⅝	·688	·594	·563	·500	·375	·25	·125	·000	318·750	·8750	3·13726	
95½	·583	·458	·417	·333	·167	·00	222·833	254·667	·333	·8333	3·14136	
95⅜	·479	·323	·271	·167	158·958	190·75	·542	·333	317·917	·7917	3·14548	
95¼	·375	·187	·125	·000	·750	·50	·250	·000	·500	·7500	3·14960	
95⅛	·271	·052	110·979	126·833	·542	·25	221·958	253·667	·083	·7083	3·15374	
95	·167	102·917	·833	·667	·333	·00	·667	·333	316·667	·6667	3·15789	
94⅞	·063	·781	·688	·500	·125	189·75	·375	·000	·250	·6250	3·16205	
94¾	78·958	·646	·542	·333	157·917	·50	·083	252·667	315·833	·5833	3·16623	
94⅝	·854	·510	·396	·167	·708	·25	220·792	·333	·417	·5417	3·17041	
94½	·750	·375	·250	·000	·500	·00	·500	·000	·000	·5000	3·17460	
94⅜	·646	·240	·104	125·833	·292	188·75	·208	251·667	314·583	·4583	3·17881	
94¼	·542	·104	109·958	·667	·083	·50	219·917	·333	·167	·4167	3·18302	
94⅛	·438	101·969	·813	·500	156·875	·25	·625	·000	313·750	·3750	3·18725	
94	·333	·833	·667	·333	·667	·00	·333	250·667	·333	·3333	3·19149	
93⅞	·229	·698	·521	·167	·458	187·75	·042	·333	312·917	·2917	3·19574	
93¾	·125	·563	·375	·000	·250	·50	218·750	·000	·500	·2500	3·20000	3¼
93⅝	·021	·427	·229	124·833	·042	·25	·458	249·667	·083	·2083	3·20427	
93½	77·917	·292	·083	·667	155·833	·00	·167	·333	311·667	·1667	3·20856	
93⅜	·813	·156	108·938	·500	·625	186·75	217·875	·000	·250	·1250	3·21285	
93¼	·708	·021	·792	·333	·417	·50	·583	248·667	310·833	·0833	3·21716	
93⅛	·604	100·885	·646	·167	·208	·25	·292	·333	·417	·0417	3·22148	
93	·500	·750	·500	·000	·000	·00	·000	·000	·000	·0000	3·22581	
92⅞	·396	·614	·354	123·833	154·792	185·75	216·708	247·667	309·583	30·9583	3·23015	
92¾	·292	·479	·208	·667	·583	·50	·417	·333	·167	·9167	3·23450	
92⅝	·188	·344	·063	·500	·375	·25	·125	·000	308·750	·8750	3·23887	
92½	·083	·208	107·917	·333	·167	·00	215·833	246·667	·333	·8333	3·24324	
92⅜	76·979	·073	·771	·167	153·958	184·75	·542	·333	307·917	·7917	3·24763	
92¼	·875	99·937	·625	·000	·750	·50	·250	·000	·500	·7500	3·25203	3¼+
92⅛	·771	·802	·479	122·833	·542	·25	214·958	245·667	·083	·7083	3·25644	
92	·667	·667	·333	·667	·333	·00	·667	·333	306·667	·6667	3·26087	
91⅞	·563	·531	·188	·500	·125	183·75	·375	·000	·250	·6250	3·26531	
91¾	·458	·396	·042	·333	152·917	·50	·083	244·667	305·833	·5833	3·26975	
91⅝	·354	·260	106·896	·167	·708	·25	213·792	·333	·417	·5417	3·27422	
91½	·250	·125	·750	·000	·500	·00	·500	·000	·000	·5000	3·27869	
91⅜	·146	98·990	·604	121·833	·292	182·75	·208	243·667	304·583	·4583	3·28317	
91¼	·042	·854	·458	·667	·083	·50	212·917	·333	·167	·4167	3·28767	
91⅛	75·938	·719	·313	·500	151·875	·25	·625	·000	303·750	·3750	3·29218	
91	·833	·583	·167	·333	·667	·00	·333	242·667	·333	·3333	3·29670	
90⅞	·729	·448	·021	·167	·458	181·75	·042	·333	302·917	·2917	3·30124	
90¾	·625	·313	105·875	·000	·250	·50	211·750	·000	·500	·2500	3·30579	
90⅝	·521	·177	·729	120·833	·042	·25	·458	241·667	·083	·2083	3·31034	
90½	·417	·042	·583	·667	150·833	·00	·167	·333	301·667	·1667	3·31492	
90⅜	·313	97·906	·438	·500	·625	180·75	210·875	·000	·250	·1250	3·31950	
90¼	·208	·771	·292	·333	·417	·50	·583	240·667	300·833	·0833	3·32410	
90⅛	·104	·635	·146	·167	·208	·25	·292	·333	·417	·0417	3·32871	
90	·000	·500	·000	·000	·000	·00	·000	·000	·000	·0000	3·33333	3½
89	74·167	96·417	103·833	118·667	148·333	178·00	207·667	237·333	296·667	29·6667	3·37079	
88½	74·063	96·281	103·688	118·500	148·125	177·75	207·375	237·000	296·250	·6250	3·37553	3¾+
88	73·333	95·333	102·667	117·333	146·667	176·	205·333	234·667	293·333	·3333	3·40909	
87	72·500	94·250	101·500	116·000	145·000	174·	203·000	232·000	290·000	·0000	3·44828	
86	71·667	93·167	100·333	114·667	143·333	172·	200·667	229·333	286·667	28·6667	3·48837	
85¾	71·458	92·896	100·042	114·333	142·917	171·50	200·083	228·667	285·833	·5833	3·49854	3½−
85	70·833	92·083	99·167	113·333	141·667	170·	198·333	226·667	283·333	·3333	3·52941	
84	70·000	91·000	98·000	112·000	140·000	168·	196·000	224·000	280·000	·0000	3·57143	
83	69·167	89·917	96·833	110·667	138·333	166·	193·667	221·333	276·667	27·6667	3·61446	
82¾	68·958	89·646	96·542	110·333	137·917	165·50	193·083	220·667	275·833	·5833	3·62538	3¼+
82	68·333	88·833	95·667	109·333	136·667	164·	191·333	218·667	273·333	·3333	3·65854	
81	67·500	87·750	94·500	108·000	135·000	162·	189·000	216·000	270·000	27·0000	3·70370	
80	66·667	86·667	93·333	106·667	133·333	160·	186·667	213·333	266·667	26·6667	3·75000	3¾
78	65·000	84·500	91·000	104·000	130·000	156·	182·000	208·000	260·000	26·0000	3·84615	3¾+
75	62·500	81·250	87·500	100·000	125·000	150·	175·000	200·000	250·000	25·0000	4·00000	4
70	58·333	75·833	81·667	93·333	116·667	140·	163·333	186·667	233·333	23·3333	4·28572	
60	50·000	65·000	70·000	80·000	100·000	120·	140·000	160·000	200·000	20·0000	5·00000	5
50	41·666	54·167	58·333	66·667	83·333	100·	116·667	133·333	166·667	16·6667	6·00000	6

6 per Cent.

n	R^n	v^n	M_n	a_n	$_np$	σ_n	f_n
51	19·5254.	·0512	308·7561.	15·8131.	·8536.	·0032	·0540.
52	20·6969.	·0483	328·2814	15·8614.	·8053.	·0030	·0508.
53	21·9387.	·0456.	348·9783	15·9070.	·7597.	·0029.	·0478.
54	23·2550	·0430	370·9170	15·9500.	·7167.	·0027.	·0449
55	24·6503	·0406.	394·1720	15·9905	·6761	·0025	·0423.
56	26·1293	·0383.	418·8223	16·0288	·6379.	·0024.	·0398.
57	27·6971	·0361	444·9517.	16·0649	·6017	·0022	·0375.
58	29·3589	·0341.	472·6488.	16·0990.	·5677.	·0021	·0353.
59	31·1205.	·0321	502·0077	16·1311	·5356.	·0020.	·0332
60	32·9877.	·0303	533·1282.	16·1614	·5052	·0019.	·0313.
61	34·9670.	·0286.	566·1159.	16·1900	·4766	·0018.	·0294
62	37·0650.	·0270.	601·0828	16·2170	·4497.	·0017.	·0277
63	39·2889.	·0255.	638·1478.	16·2425.	·4242	·0016.	·0261
64	41·6462.	·0240	677·4367.	16·2665.	·4002.	·0015.	·0246
65	44·1450.	·0227.	719·0829.	16·2891	·3775	·0014.	·0232.
66	46·7937.	·0214.	763·2278	16·3105.	·3562.	·0013	·0218
67	49·6013.	·0202.	810·0215	16·3307.	·3360	·0012	·0206.
68	52·5774.	·0190	859·6228.	16·3497.	·3170.	·0012.	·0194.
69	55·7320	·0179	912·2002.	16·3676	·2991.	·0011.	·0183.
70	59·0759	·0169	967·9322.	16·3845	·2821	·0010	·0172
71	62·6205.	·0160.	1027·0081.	16·4005	·2662.	·0010.	·0162
72	66·3777	·0151.	1089·6286.	16·4156.	·2511.	·0009	·0153.
73	70·3604.	·0142	1156·0063	16·4298.	·2369.	·0009.	·0144
74	74·5820	·0134	1226·3667.	16·4432.	·2235.	·0008	·0136.
75	79·0569	·0126	1300·9487.	16·4558	·2108	·0008.	·0128
76	83·8003	·0119	1380·0056	16·4678.	·1989.	·0007	·0121.
77	88·8284.	·0113.	1463·8059	16·4790	·1876	·0007.	·0114.
78	94·1581.	·0106	1552·6343.	16·4897.	·1770	·0006	·0107
79	99·8075	·0100	1646·7924.	16·4997.	·1670.	·0006	·0101
80	105·7960.	·0095.	1746·5999.	16·5091	·1575	·0006.	·0095
81	112·1438.	·0089	1852·3959.	16·5180	·1486	·0005	·0090.
82	118·8724.	·0084	1964·5396	16·5265.	·1402	·0005	·0085.
83	126·0047.	·0079	2083·4120	16·5344.	·1323.	·0005.	·0080
84	133·5650	·0075.	2209·4167	16·5419.	·1248.	·0005.	·0075
85	141·5789	·0071.	2342·9817	16·5489	·1177	·0004	·0071
86	150·0736	·0067.	2484·5606	16·5556	·1111.	·0004	·0067
87	159·0781.	·0063.	2634·6343.	16·5619.	·1048.	·0004.	·0063
88	168·6227	·0059	2793·7123	16·5678	·0988	·0004.	·0060.
89	178·7401	·0056.	2962·3351.	16·5734	·0932	·0003	·0056
90	189·4645	·0053.	3141·0752.	16·5787.	·0880.	·0003	·0053
91	200·8324.	·0050.	3330·5397.	16·5837.	·0830.	·0003	·0050
92	212·8823	·0047.	3531·3721.	16·5884.	·0783.	·0003.	·0047
93	225·6553.	·0044	3744·2544	16·5928	·0739.	·0003.	·0045.
94	239·1946.	·0042.	3969·9097.	16·5970.	·0697.	·0003.	·0042.
95	253·5463.	·0039	4209·1042	16·6009	·0657	·0002	·0040.
96	268·7590	·0037	4462·6505	16·6047.	·0620	·0002	·0037
97	284·8846.	·0035	4731·4095	16·6082.	·0585	·0002	·0035
98	301·9776	·0033	5016·2941	16·6115.	·0552.	·0002.	·0033
99	320·0963	·0031	5318·2718.	16·6146.	·0521.	·0002.	·0031
100	339·3021.	·0029	5638·3681.	16·6175	·0491	·0002.	·0030.

$r = \cdot 06$, its log. $\bar{2}\cdot 77815125038$
$p = 16\cdot\dot{6}$, its log. $1\cdot 22184874962$
$P = 17\cdot\dot{6}$, its log. $1\cdot 24715461488$

$R = 1\cdot 06$, its log. $0\cdot 02530586526$
$v = \cdot 9433962264150$, its log. $\bar{1}\cdot 97469413474$
$d = \cdot 0566037735849$, its log. $\bar{2}\cdot 75284538512$

7 per Cent.

n Years.	R^n Amount of £1 in n years.	v^n Present Value of £1 due n years hence.	M_n Amount of £1 per annum in n years.	a_n Present Value of £1 per annum for n years.	${}_np$ Present Value of Reversion to £1 per annum after n years.	σ_n Sinking Fund that will amount to £1 in n years.	f_n Present Value of £1 receivable once in every nth year.
1	1·07	·9346.	1·	·9346.	13·3511	1·	14·2857
2	1·1449	·8734	2·07	1·8080	12·4777.	·4831.	6·9013
3	1·2250	·8163.	3·2149	2·6243	11·6614.	·3111.	4·4436.
4	1·3108.	·7629.	4·4399	3·3872	10·8985	·2252	3·2175
5	1·4026.	·7130.	5·7507	4·1002.	10·1855	·1739.	2·4842.
6	1·5007	·6663	7·1533.	4·7665	9·5192.	·1398.	1·9971.
7	1·6058.	·6227	8·6540	5·3893.	8·8964	·1156.	1·6508.
8	1·7182.	·5820	10·2598	5·9713.	8·3144	·0975.	1·3924.
9	1·8385.	·5439	11·9780.	6·5152	7·7705.	·0835.	1·1927.
10	1·9672.	·5083	13·8164	7·0236.	7·2621	·0724.	1·0340.
11	2·1049.	·4751.	15·7836.	7·4987.	6·7870	·0634.	·9051.
12	2·2522.	·4440	17·8885.	7·9427.	6·3430	·0559	·7986
13	2·4098	·4150.	20·1406	8·3577.	5·9281.	·0497.	·7093.
14	2·5785	·3878	22·5505.	8·7455.	5·5402	·0443	·6335.
15	2·7590	·3624	25·1290	9·1079	5·1778	·0398.	·5685.
16	2·9522.	·3387	27·8881.	9·4466	4·8391.	·0359.	·5123.
17	3·1588	·3166.	30·8402	9·7632	4·5225.	·0324	·4632
18	3·3799	·2959.	33·9990	10·0591.	4·2266	·0294	·4202.
19	3·6165	·2765	37·3790.	10·3356.	3·9501	·0268.	·3822.
20	3·8697.	·2584	40·9955.	10·5940	3·6917	·0244.	·3485.
21	4·1406.	·2415	44·8652.	10·8355	3·4502.	·0223.	·3184
22	4·4304	·2257	49·0057	11·0612	3·2245.	·0204	·2915
23	4·7405	·2109	53·4361	11·2722.	3·0135	·0187	·2673
24	5·0724.	·1971	58·1767.	11·4693	2·8164.	·0172.	·2456.
25	5·4274	·1842	63·2490	11·6536.	2·6321	·0158	·2259.
26	5·8074.	·1722.	68·6765.	11·8258.	2·4599	·0146.	·2080
27	6·2139.	·1609	74·4838	11·9867	2·2990	·0134	·1918.
28	6·6488	·1504	80·6977.	12·1371	2·1486	·0124.	·1770
29	7·1143.	·1406.	87·3465	12·2777.	2·0080	·0114	·1636.
30	7·6123.	·1314.	94·4608.	12·4090	1·8767.	·0106.	·1512
31	8·1451	·1228.	102·0730	12·5318	1·7539	·0098.	·1400.
32	8·7153.	·1147	110·2182.	12·6466.	1·6392.	·0091.	·1296
33	9·3253	·1072	118·9334	12·7538.	1·5319	·0084	·1201
34	9·9781	·1002	128·2588.	12·8540	1·4317	·0078.	·1114.
35	10·6766.	·0937.	138·2369.	12·9477.	1·3380	·0072	·1033
36	11·4239	·0875	148·9135.	13·0352	1·2505	·0067	·0959
37	12·2236	·0818	160·3374	13·1170	1·1687.	·0062	·0891.
38	13·0793.	·0765.	172·5610	13·1935.	1·0922	·0058.	·0828.
39	13·9948	·0715.	185·6403.	13·2649	1·0208.	·0054.	·0770.
40	14·9745.	·0668.	199·6351	13·3317	·9540	·0050	·0716.
41	16·0227.	·0624	214·6096.	13·3941	·8916.	·0047.	·0666.
42	17·1443.	·0583	230·6322	13·4524	·8333.	·0043	·0619
43	18·3444.	·0545	247·7765.	13·5070.	·7788.	·0040	·0577.
44	19·6285.	·0509	266·1209.	13·5579	·7278	·0038.	·0537.
45	21·0025.	·0476	285·7493	13·6055	·6802.	·0035.	·0500.
46	22·4726	·0445.	306·7518.	13·6500	·6357.	·0033.	·0466.
47	24·0457	·0416.	329·2244.	13·6916	·5941	·0030	·0434.
48	25·7289	·0389.	353·2701.	13·7305.	·5552	·0028	·0404
49	27·5299	·0363	378·9990.	13·7668.	·5189	·0026	·0377.
50	29·4570	·0339	406·5289	13·8007	·4850.	·0025.	·0351

a_{xyz} To find (approximately) the value of an **annuity of £1 held on** the joint continuance of **3 lives** x, y, z.

Rule.—Find the value of an annuity on the joint continuance of the elder two lives; then find the age of a single life the annuity on which is of the same value; then the value of a joint life annuity on this substituted life with the youngest of the three (deducting ·05) is a very near approximation to the true value.

Let x and y be the elder lives; find the life w so that $a_w = a_{xy}$ then $a_{xyz} = a_{wz} - \cdot 05$.

To find the sum that may be given for an annuity upon the life x, so that (if the purchaser effect an assurance upon the life for an amount equal to the total cost, including the first annual premium, which must be paid at once, and one year's interest, which would otherwise be lost after x's decease, before the sum assured will be received) the purchaser may realize during the continuance of the life a certain rate of interest upon his outlay, and after x's decease may recover his capital and one year's interest at the same rate:—or, in other words,

To find **the price an** *individual* **may give for an annuity without risk** of loss.

Rule.—To the annual premium (Π) charged for the assurance of £1 on the life, add the discount (d) on £1 for one year, and, from the reciprocal of this sum deduct 1.

The **price** to be given for the annuity is	$\frac{1}{\Pi + d} - 1$
The **annual premium** required to secure the whole present cost with interest	$\frac{\Pi}{\Pi + d}$
The **sum to be assured** on the life	$\frac{1}{\Pi + d}$
The **total cost**, or purchase-money added to the first premium, is	$\frac{v}{\Pi + d}$

If it is preferred to pay the premium in a single sum—

The price to be given for the annuity will be $p - \mathrm{P}.{}_x\mathrm{A}$.

The single premium will be $\mathrm{P}.{}_x\mathrm{A}$,

${}_x\mathrm{A}$ being the single premium to assure £1 on x,

and **the total cost** is the price of a perpetuity at the rate of interest required.

${}_na_x$ The value of a **deferred life annuity**, or an annuity for the remainder of a life x after n years. $v^n . x_n . a_{x+n}$

Rule.—Multiply the value of an annuity on a life aged $x + n$ by the present value of £1 due n years hence and by the probability of x living n years.

a_{nx} The value of a **temporary life annuity**, or one payable for n years, if x live so long. $a_x - {}_na_x$

Rule.—From the value of an annuity on the life x, deduct the value of an annuity on the same life deferred n years.

Note.—If the annuity is to be paid at the end of every year for n years so long as x enters, though he should not complete the year, add 1 to the above value and multiply by v. $v(1 + a_{nx})$

$a_{n:x}$ The value of an annuity for n **years certain,** but **to continue during the life of x if he survive.** $a_n + {}_na_x$

Rule.—To the value of an annuity certain for n years, add the value of an annuity on x deferred n years.

${}_x\mathrm{A}$ The value of £1 payable at the end of the year in which x dies—*i.e.*, of **an assurance of £1 on a life aged x.**

Rule.—Multiply the value of an annuity on the life by the rate of interest r per £1; deduct this from 1, and divide the remainder by R, the amount of £1 in one year. $\frac{1 - r.a_x}{\mathrm{R}}$

Or—Multiply the value of the annuity by the discount on £1 for one year, and subtract the product from v, the present value of £1 due a year hence. $v - d.a_x$

Or—Deduct from a perpetuity the worth of an annuity on x, and multiply by the discount on £1 for one year . . . $= d(p - a_x)$

${}_xa$ The value of the **reversion to a perpetuity** after the death of a person aged x $p - a_x$

is the difference between the value of a perpetuity and an annuity on the life; or, it may be found from a table of assurance values, by dividing the value of an assurance on the life by the discount on £1 for a year. $\frac{{}_x\mathrm{A}}{d}$

${}_{nx}\mathrm{A}$ The value of £1 to be received **in n years, or at the end of the year in which x shall die,** if his death occur before n years.

Rule.—Multiply the value of an annuity for n years of x's life by the interest of £1 for one year; deduct the product from 1, and divide by the amount of £1 in one year. $\frac{1 - r.a_{nx}}{\mathrm{R}}$

Or—Following the analogy of ${}_x\mathrm{A}$ . . . ${}_{nx}\mathrm{A} =$ $v - d.a_{nx}$

${}_{n:\dot{x}}\mathrm{A}$ The value of an assurance of £1 on x's life, payable only if x live beyond the nth year.

Rule.—Multiply the present value of £1 assured on a life n years older than x by the present value of £1 payable to x if he survive n years. $v^n.{}_{\dot{n}}x.{}_{(x+n)}\mathrm{A}$

${}_{n:x}\mathrm{A}$ The value of an assurance of £1 on x's life, or n years, whichever may be the most extended. Or—The present value of a reversion to £1, when n years and x's life are both spent.

Rule.—Multiply the value of an annuity on the longest of the two periods ($a_{x:n}$) by the discount on £1 for a year, and deduct the product from v, the present value of £1 due a year hence. $v - d.a_{n:x}$

${}_x\mathrm{A}_n$ The present value of £1 assured on x's life, payable only if he die within n years.

Rule.—From the value of an assurance on x, deduct the value of £1 payable on his decease, if that happen beyond the nth year ${}_{n:\dot{x}}\mathrm{A}$ (as above). ${}_x\mathrm{A} - {}_{n:\dot{x}}\mathrm{A}$

To find the **annual premium** to secure **any deferred benefit**:—

Divide the present value of the benefit by 1 more than the present value of an annuity for the period during which the premiums are to be paid.

FORMULÆ FOR ANNUITIES IN POSSESSION.

a_x	An annuity payable during the life of a person aged x.	*See* Tables.
a_{nx}	An annuity payable during n years, if x should live so long. $a_x - {}_na_x =$	$a_x - v^n . \underset{n}{x} . a_{x+n}$
$a_{n:x}$	An annuity for x's life, or to the end of n years; whichever may be longest. $a_n + {}_na_x =$	$a_n + v^n . \underset{n}{x} . a_{x+n}$
a_{xy}	An annuity during the joint life of x and y is worth $v.\underset{1}{x}.\underset{1}{y} + v^2.\underset{2}{x}.\underset{2}{y} + v^3.\underset{3}{x}.\underset{3}{y} +$ &c., till one life drops.	*See* Tables.
$a_{\dot{x}\dot{y}}$	An annuity on the joint lives x and y, payable to the end of the year in which x dies, if y survive.	$\dfrac{a_{x-1,y} . l_{x-1}}{l_x}$
$a_{x:y}$	An annuity on **the longest of two lives**, x and y, is worth	$a_x + a_y - a_{xy}$
a_{nxy}	An annuity for n years, if x and y both live so long,	$a_{xy} - \underset{n}{x}.\underset{n}{y}.v^n . a_{(xy)+n}$
$a_{n(x:y)}$	An annuity for n years, if either x or y live so long,	$a_{nx} + a_{ny} - a_{nxy}$
a_{xyz}	An annuity on the joint continuance of three lives is worth $v.\underset{1}{x}.\underset{1}{y}.\underset{1}{z} + v^2.\underset{2}{x}.\underset{2}{y}.\underset{2}{z} + v^3.\underset{3}{x}.\underset{3}{y}.\underset{3}{z} +$ &c., till one life falls.	
	Note.—For a close approximation, see the Rule previously given, p. 35.	$a_{wz} - \cdot 05$
$a_{x:y:z}$	An annuity on the longest of three lives.	$a_x + a_y + a_z + a_{xyz} - a_{xy} - a_{xz} - a_{yz}$
$a_{\frac{xyz}{2}}$	An annuity to continue so long as any two of three given lives shall survive.	$a_{xy} + a_{yz} + a_{xz} - 2a_{xyz}$
$a_{x(y:z)}$	An annuity to x so long as either y or z shall be living.	$a_{xy} + a_{xz} - a_{xyz}$

The above are types of many similar problems which, being unusual in practice, have not been particularized; as one unused to calculations of this kind would probably be too much surprised at the results of calculation to credit them, unless certified by an Actuary.

LIFE ANNUITIES, &c. DEFERRED.

${}^na_x$	The present value of an annuity on the remainder of x's life after n years.	$v^n . \underset{n}{x} . a_{x+n}$
${}_xa_n$	The present value of so much of an annuity for n years as may be left after x's death.	$a_n - a_{xn}$
${}^da_{nx}$	The present value of an annuity for n years of x's life, omitting the first d years.	${}^da_x - {}_na_x$
${}_xa_y$	The present value of an annuity on the remainder of y's life after x's decease.	$a_y - a_{xy}$
${}_{xy}a_{x:y}$	Present value of an annuity for the remainder of the life of the survivor of two, after the death of the other.	$a_x + a_y - 2a_{xy}$
${}_na_{xy}$	Present value of an annuity on the remainder of two joint lives, after n years.	$\underset{n}{x}.\underset{n}{y}.v^n . a_{(xy)+n}$
${}_na_{x:y}$	Present value of annuity on longest of two lives, omitting (or deferred) n years.	${}_na_x + {}_na_y - {}_na_{xy}$
	If this annuity be contingent on both lives surviving n years, its value is, $\underset{n}{x}.\underset{n}{y}.v^n.(a_{x+n} + a_{y+n} - a_{(xy)+n})$.	

${}_{z}a_{yn}$	Present value of annuity for n years from this time, if y live so long; but deferred till x's death.	$a_{zy} - a_{nzy}$
${}_{z}a_{xy}$	Present value of annuity during so much of the joint life of x and y as may be after the death of z.	$a_{xy} - a_{xyz}$
${}_{z}a_{x \cdot y}$	Present value of annuity on longest of two lives, x and y, after the death of z.	$a_x + a_y - a_{xy} - a_{xz} - a_{yz} + a_{xyz}$
${}_{xyz}a_{x:y:z}$	Present value of annuity on longest of three lives after the death of either.	$a_x + a_y + a_z - a_{xy} - a_{xz} - a_{yz}$
$\frac{{}_{xyz}a_{x:y:z}}{2}$	Present value of annuity on longest of three lives after the death of the other two.	$a_x + a_y + a_z + 3a_{xyz} - 2(a_{xy} + a_{xz} + a_{yz})$
$\frac{{}_{xyz}a_{xyz}}{2}$	Present value of annuity during survivancy of any two of three lives after the death of the third.	$a_{xy} + a_{xz} + a_{yz} - 3a_{xyz}$
${}_{xy}a_{z}$	Present value of annuity on remainder of z's life after the death of either x or y.	$a_z - a_{xyz}$
${}_{x:y}a_{z}$	Present value of annuity on remainder of z's life after x and y are both dead.	$a_z + a_{xyz} - a_{xy} - a_{xz}$

LIFE ASSURANCES.

${}_{x}A$	Present value of £1 assured on x's life.	$\frac{1 - r.a_x}{R}$ =	$v - d.a_x$
${}_{nx}A$	Assurance of £1 payable in n years, or on x's death, if it occurs within n years.		$v - d.a_{nx}$
${}_{n:x}A$	Assurance of £1 payable in n years, or on x's death, whichever may be remote.		$v - d.a_{n:x}$
${}_{n:\dot{x}}A$	Assurance of £1 on x, payable only if he outlive n years.		$v^n . {}_{n}x_{x+n}A$
	This formula is equivalent to	$\frac{l_{x+n} - r.l_{x+n}.a_{x+n}}{l_x.R^{n+1}}$ =	$v^{n+1}.{}_{n}x_{x}(1 - r.a_{x+n})$
${}_{n}A_{x}$	Assurance of £1 payable to x if he be alive n years hence.		$v^n . {}_{n}x$
${}_{x}A_{n}$	Assurance of £1 on x's decease if within n years.		${}_{x}A - {}_{n:\dot{x}}A$
${}_{xy}A$	Assurance of £1 on the joint life of x and y: *i.e.* payable on the first death.		$v - d.a_{xy}$
${}_{\overline{xy}}A$	Assurance of £1 on the joint life of x and y, payable if both die in the same year.		${}_{xy}A - {}_{x}A_{y} - {}_{y}A_{x}$
${}_{x\dot{y}}A$	Assurance of £1 on x's life, payable only on condition that y survives.	$\frac{1}{2}\left\{ {}_{xy}A + \frac{a_{x-1,y}.l_{x-1}}{l_x} - \frac{a_{y-1,x}.l_{y-1}}{l_y} \right\}$	
${}_{x}A_{y}$	Assurance of £1 to y, if he live to the end of the year in which x dies.		$a_{x\dot{y}} - a_{xy}$
${}_{x:y}A$	Assurance of £1 on the longest of two lives.		${}_{x}A + {}_{y}A - {}_{xy}A$ or $v - d.a_{x:y}$
${}_{x:\dot{y}}A$	Assurance of £1 on y's life, payable only if x have died before him.		${}_{y}A - A_{\dot{x}y}$
${}_{xy}A_{n}$	Assurance of £1 on two joint lives, payable only if one of them fail within n years.		$v - v^{n+1}{}_{n}xy_{n} - d.a_{nxy}$
${}_{x:y}A_{n}$	Assurance of £1 on the longest of two lives, payable only if both fail within n years.		${}_{x}A_{n} + {}_{y}A_{n} - {}_{xy}A^{n}$

For the solution of more intricate problems an Actuary should be consulted.

ASSURANCE BY ANNUAL PREMIUMS.

1st. By a limited number of payments.

Divide the present value of the benefit to be secured by one more than the present value of an annuity for the term during which the payments of premium are to be made.

Thus:—

The annual premium payable for t years, if x should live so long, to assure a perpetuity after his decease. $\frac{p - a_x}{1 + a_{x,t-1}}$

The annual premium payable for t years, if x assure £1 on his decease. $\frac{{}_xA}{1 + a_{x,t-1}}$

2nd. By payments till the assurance becomes a claim.

${}_x\pi$	Annual premium during x's life, to assure a perpetuity afterwards.	$\frac{{}_xa}{1 + a_x}$
${}_x\Pi$	Annual premium during x's life, to secure £1 on his decease.	$\frac{1}{1 + a_x} - d$
${}_{xn}\Pi$	Annual premium during n years of x's life, to secure £1 in n years, or sooner on x's death.	$\frac{{}_{xn}A}{1 + a_{x,n-1}}$
${}_{n:\dot{x}}\Pi$	Annual premium during x's life, to assure £1 on his decease, provided he outlive n years.	$\frac{{}_{n:\dot{x}}A}{1 + a_x}$
${}_n\Pi_x$	Annual premium during n years of x's life, to assure him £1 n years hence.	$\frac{{}_nA_x}{1 + a_{x,n-1}}$
${}_n\pi_x$	Annual premium during n years of x's life, to assure him an annuity for the remainder of his life.	$\frac{{}_na_x}{1 + a_{x,n-1}}$
${}_x\Pi_n$	Annual premium during n years of x's life (or during his life), to secure £1 at his death, if that happen within n years.	$\frac{{}_xA_n}{1 + a_{x,n-1}}$
${}_d\pi_{nx}$	Annual premium for d years, to secure a temporary annuity on x's life for the remainder of n years from now.	$\frac{{}_da_{nx}}{1 + a_{x,d-1}}$
${}_{xy}\Pi$	Annual premium during joint life of x and y, to assure £1 on its failure.	$\frac{{}_{xy}A}{1 + a_{xy}}$
	Or (following the analogy of ${}_x\Pi$).	$\frac{1}{1 + a_{xy}} - d$
${}_{x\dot{y}}\Pi$	Annual premium during joint life of x and y, to assure £1 on failure of joint life, provided x die first.	$\frac{{}_{x\dot{y}}A}{1 + a_{xy}}$
${}_x\pi_y$	Annual premium during joint life of x and y, to assure an annuity to y for the remainder of his life after x's decease.	$\frac{{}_xa_y}{1 + a_{xy}}$
${}_{x:y}\Pi$	Annual premium during longest life of x and y, to secure £1 on the death of the longest lived.	$\frac{{}_{x:y}A}{1 + a_{x:y}}$
${}_{x:\dot{y}}\Pi$	Annual premium during y's life, to assure £1 on his death, provided x predecease him.	$\frac{{}_{x:\dot{y}}A}{1 + a_y}$
	Annual premium during joint continuance of x and y, to assure £1 on y's death, if x predecease him.	$\frac{{}_{x:\dot{y}}A}{1 + a_{xy}}$
${}_{x\dot{y}}\Pi_n$	Annual premium during x, y, and $n - 1$ years, to assure £1 on death of x, if y survive and x die within n years.	$\frac{{}_{x\dot{y}}A_n}{1 + a_{xy,n-1}}$

${}_{xy}\pi_z$	Annual premium to assure an annuity for the remainder of z's life after the death of x or y.	$\dfrac{a_z - a_{xyz}}{1 + a_{xyz}}$
${}_{z:y}\pi_x$	Annual premium to assure an annuity for the remainder of z's life after both x and y are dead.	$\dfrac{{}_{z:y}a_z}{1 + a_{xz} + a_{yz} - a_{xyz}}$
${}_{x:y}\pi_z$	Annual premium to assure an annuity for the longest of two lives, x and y, after z's death.	$\dfrac{{}_{z}a_{x:y}}{1 + a_{xz} + a_{yz} - a_{xyz}}$
${}_{z}\pi_{xy}$	Annual premium to assure an annuity for the remainder of the joint life of x and y after z's death.	$\dfrac{{}_{z}a_{xy}}{1 + a_{xyz}}$

SUCCESSIVE LIVES.

1st. When the successive lives are to be of different ages.

The present value of an annuity on a life aged y, to be nominated on the death of one aged x. ${}_{x}\mathrm{A}(1 + a_y)$

Present value of an annuity on a life aged z, to be nominated on the death of x and his successor y. ${}_{x}\mathrm{A} \,.\, {}_{y}\mathrm{A}(1 + a_z)$

Putting ${}_{x}\mathrm{A}$ for the value of an assurance on the life in possession,
${}_{1}\mathrm{A}$ for the value of an assurance on a life to follow,
${}_{2}\mathrm{A}$ for the value of an assurance on a second following life, &c. &c.:—

The value of an annuity on the first life to follow that in possession is— ${}_{x}\mathrm{A}(1 + a_1)$

The value of an annuity on the second life is— ${}_{x}\mathrm{A} \,.\, {}_{1}\mathrm{A}(1 + a_2)$

On the nth life— ${}_{x}\mathrm{A} \,.\, {}_{1}\mathrm{A} \,.\, {}_{2}\mathrm{A} \,.\, {}_{3}\mathrm{A} \,.\, \&c. \,\&c. \,.\, {}_{n-1}\mathrm{A}(1 + a_n)$

The value of the first n lives— ${}_{x}a(1 - {}_{1}\mathrm{A} \,.\, {}_{2}\mathrm{A} \,.\, {}_{3}\mathrm{A} \times \&c. \,\&c. \times {}_{n}\mathrm{A})$

The value of the nth fine on a series of successive lives—
i.e., the present value of a fine of £1 to be paid on the nomination of the nth life in succession after that in possession— ${}_{x}\mathrm{A} \,.\, {}_{1}\mathrm{A} \,.\, {}_{2}\mathrm{A} \,.\, \&c. \times {}_{n-1}\mathrm{A}$

The value of the first n fines— ${}_{x}\mathrm{A} + {}_{x}\mathrm{A} \,.\, {}_{1}\mathrm{A} + \&c. + {}_{x}\mathrm{A} \,.\, {}_{1}\mathrm{A} \ldots {}_{n-1}\mathrm{A}$

The value of all succeeding lives after x— ${}_{x}a$

2nd. When the succeeding lives are all of one age.

x being the age of the life in possession,
y the age of each following life,

The value of the next life is— ${}_{x}\mathrm{A}(1 + a_y)$

" second succeeding life— ${}_{x}\mathrm{A} \,.\, {}_{y}\mathrm{A}(1 + a_y)$

" nth life— ${}_{x}\mathrm{A} \,.\, {}_{y}\mathrm{A}^{n-1}(1 + a_y)$

" first n lives— ${}_{x}a(1 - {}_{y}\mathrm{A}^{n})$

" all succeeding lives— ${}_{x}a$

" n lives following at intervals of t lives—
i.e., of the mth life, the $(m+t)$th, the $(m+2t)$th, &c., to the $(m+(n-1)t)$th— $\dfrac{{}_{x}a \,.\, {}_{y}\mathrm{A}^{m-1} \,.\, (1 - {}_{y}\mathrm{A})\,(1 - {}_{y}\mathrm{A}^{nt})}{1 - {}_{y}\mathrm{A}^{t}}$

The value of the mth and every tth after, for ever— $\dfrac{{}_{x}a \,.\, {}_{y}\mathrm{A}^{m-1}(1 - {}_{y}\mathrm{A})}{1 - {}_{y}\mathrm{A}^{t}}$

" nth fine of £1— ${}_{x}\mathrm{A} \,.\, {}_{y}\mathrm{A}^{n-1}$

" first n fines $\dfrac{{}_{x}a(1 - {}_{y}\mathrm{A}^{n})}{1 + a_y}$ or $\dfrac{{}_{x}\mathrm{A}(1 - {}_{y}\mathrm{A}^{n})}{1 - {}_{y}\mathrm{A}}$

The present value of all the fines to perpetuity— $\frac{{}_{z}a}{1+a_y}$

The present value of all the fines to perpetuity, when there are several lives in possession (say three; viz.—x, y, and z), and when o is the best life that can be put in— $\frac{3p-a_x-a_y-a_z}{1+a_o}$

The fine f, that should be charged on each renewal, if a lease be granted for three lives, is, for every £1 in the annual value of the estate— $\frac{1+a_o}{3p-a_x-a_y-a_z}$

The present value of the next fine, in a lease for three lives, is— $f_{\cdot xyz}\mathrm{A}$

The fine to be paid for substituting a life s for a life x in such a lease, is— $f.\frac{a_s-a_x}{1+a_o}$

CHURCH LIVINGS.

Call s the net annual value of a living, including all emoluments, the parsonage house valued as if let to a tenant bound to repair, and the glebe lands as let to a good tenant; and deducting a stipend for the minister (as well as one for the curate, if one is chargeable on the living), the rates, taxes, and other unavoidable annual charges.

Let f be the expenses of entry:—

The next presentation is worth— ${}_{z}\mathrm{A}\left(s(1+a_y)-f\right)$

The advowson is worth— ${}_{z}a\left(s-\frac{f}{1+a_y}\right)$

The present worth of the fines and expenses is, however, generally so small, that it may be omitted; the two formulæ—assuming £1 as the net annual value—will therefore become $\left.\begin{matrix}{}_{z}\mathrm{A}(1+a_y)\\ {}_{z}a\end{matrix}\right\}$

POLICIES OF ASSURANCE.

The value of a policy for £1, n years after it was taken up, would be theoretically as follows:—

When the $(n+1)$th premium is just due— $\frac{a_x-a_{x+n}}{1+a_x}$

When the $(n+1)$th premium has just been paid— $v-\frac{a_{x+n}}{1+a_x}$

But, as the Offices load their premiums to pay expenses and supply so-called bonuses—

The value of a policy is practically (calling the Office premium payable on the policy P_x); $(\pi_{x+n}-\mathrm{P}_x)\,a_{x+n}$, or ${}_{x+n}\mathrm{A}-a_{x+n}.\mathrm{P}_x$,

With a sum added for the estimated value of bonuses.

As an example—Suppose a policy for £500 taken out by a gentleman aged 22, on the non-participating scale, and that at the end of 10 years, just as the eleventh premium is becoming due, he wishes to sell it.

If the premiums paid by him were unloaded (*i.e.*, the theoretical premiums), the value of his policy would be £500 $\cdot\frac{a_{22}-a_{32}}{1+a_{22}}$, which, by the 3 per cent. Carlisle Table, is $=500\cdot\frac{21\cdot305-19\cdot135}{22\cdot305}=$ £48·643.

Taking the premiums of several Offices, it would be £500 $({}_{32}\mathrm{A}-a_{32}.\mathrm{P}_{22})$, or $500\,(\cdot420-19\cdot135\times\cdot018)=$ £37·75.

Carlisle Life Data.

x Age.	l_x Number of Living.	$\lambda o\gamma.\ l_x$ Logarithm of Number Living.	$\lambda o\gamma.\ d_x$ Logarithm of Number Dying in each year of age.	$l_{x+1} \div l_x$ Probability of Living one year.	$d_x \div l_x$ Probability of Dying within a year.	e_x Expectation of Life.
0	10000	4·0000000	3·1872386	·8461000	·1539000	38·721
1	8461	3·9274217	2·8337844	·9193949	·0806051	44·674
2	7779	·8909238	·7032914	·9350816	·0649184	47·546
3	7274	·8617733	·4409091	·9620566	·0379434	49·812
4	6998	·8449739	·3031961	·9712775	·0287225	50·757
5	6797	·8323173	·0827854	·9821900	·0178100	51·244
6	6676	·8245163	1·9138139	·9877172	·0122828	51·163
7	6594	·8191489	·7634280	·9912041	·0087959	50·793
8	6536	·8153120	·6334685	·9934211	·0065789	50·240
9	6493	·8124454	·5185139	·9949176	·0050824	49·569
10	6460	.8102325	·4623980	·9955108	·0044892	48·820
11	6431	·8082785	·4913617	·9951796	·0048204	48·038
12	6400	·8061800	·5051500	·9950000	·0050000	47·268
13	6368	·8040031	·5185139	·9948178	·0051822	46·503
14	6335	·8017466	·5440680	·9944751	·0055249	45·742
15	6300	·7993405	·5910646	·9938095	·0061905	44·994
16	6261	·7966437	·6232493	·9932918	·0067082	44·271
17	6219	·7937206	·6334685	·9930857	·0069143	43·567
18	6176	·7907073	·6334685	·9930376	·0069624	42·866
19	6133	·7876730	·6334685	·9929890	·0070110	42·163
20	6090	·7846173	·6334685	·9929392	·0070608	41·458
21	6047	·7815400	·6232493	·9930544	·0069456	40·749
22	6005	·7785130	·6232493	·9930058	·0069942	40·030
23	5963	·7754648	·6232493	·9929566	·0070434	39·309
24	5921	·7723951	·6232493	·9929066	·0070934	38·584
25	5879	·7693035	·6334685	·9926858	·0073142	37·856
26	5836	·7661153	·6334685	·9926319	·0073681	37·131
27	5793	·7629035	·6532125	·9922320	·0077680	36·403
28	5748	·7595168	·6989700	·9913013	·0086987	35·684
29	5698	·7557224	·7481880	·9901720	·0098280	34·993
30	5642	·7514331	·7558749	·9898972	·0101028	34·336
31	5585	·7470232	·7558749	·9897941	·0102059	33·681
32	5528	·7425680	·7481880	·9898697	·0101303	33·023
33	5472	·7381461	·7403627	·9899488	·0100512	32·356
34	5417	·7337588	·7403627	·9898468	·0101532	31·679
35	5362	·7293268	·7403627	·9897426	·0102574	30·999
36	5307	·7248491	·7481880	·9894479	·0105521	30·315
37	5251	·7202420	·7558749	·9891449	·0108551	29·633
38	5194	·7155019	·7634280	·9888333	·0111667	28·953
39	5136	·7106250	·7853298	·9881231	·0118769	28·274
40	5075	·7054360	·8195439	·9869951	·0130049	27·608
41	5009	·6997510	·8388491	·9862248	·0137752	26·965
42	4940	·6937269	·8512583	·9856275	·0143725	26·335
43	4869	·6874398	·8512583	·9854180	·0145820	25·712
44	4798	·6810602	·8512583	·9852022	·0147978	25·085
45	4727	·6745856	·8450980	·9851915	·0148085	24·454
46	4657	·6681062	·8388491	·9851836	·0148164	23·814
47	4588	·6616234	·8260748	·9853967	·0146033	23·165
48	4521	·6552345	·7993405	·9860651	·0139349	22·500
49	4458	·6491401	·7853298	·9863167	·0136833	21·811
50	4397	·6431565	·7708520	·9865818	·0134182	21·107

Carlisle Life Data.

x	l_x	$\lambda o\gamma.\ l_x$	$\lambda o\gamma.\ d_x$	$l_{x+1} \div l_x$	$d_x \div l_x$	e_x
51	4338	3·6372895	1·7923917	·9857077	·0142923	20·387
52	4276	·6310377	·8129134	·9847989	·0152011	19·676
53	4211	·6243852	·8325089	·9838518	·0161482	18·972
54	4143	·6173149	·8450980	·9831041	·0168959	18·275
55	4073	·6099144	·8633229	·9820771	·0179229	17·580
56	4000	·6020600	·8808136	·9810000	·0180000	16·892
57	3924	·5937290	·9138139	·9791030	·0208970	16·209
58	3842	·5845574	·9684829	·9757939	·0242061	15·545
59	3749	·5739154	2·0253059	·9717258	·0282742	14·918
60	3643	·5614592	·0863598	·9665112	·0334888	14·337
61	3521	·5466660	·1003705	·9642147	·0357853	13·817
62	3395	·5308398	·1038037	·9625921	·0374079	13·311
63	3268	·5142820	·0969100	·9617503	·0382497	12·809
64	3143	·4973444	·0969100	·9602291	·0397709	12·299
65	3018	·4797192	·0934217	·9589132	·0410868	11·787
66	2894	·4614985	·0899051	·9574983	·0425017	11·271
67	2771	·4426365	·0899051	·9556117	·0443883	10·749
68	2648	·4229180	·0899051	·9535498	·0464502	10·225
69	2525	·4022614	·0934217	·9508911	·0491089	9·699
70	2401	·3803922	·0934217	·9483549	·0516451	9·174
71	2277	·3573630	·1271048	·9411506	·0588494	8·646
72	2143	·3310222	·1643529	·9318712	·0681288	8·156
73	1997	·3003781	·1931246	·9218828	·0781172	7·715
74	1841	·2650538	·2201081	·9098316	·0901684	7·327
75	1675	·2240148	·2041200	·9044776	·0955224	7·003
76	1515	·1804126	·1931246	·8970297	·1029703	6·690
77	1359	·1332195	·1643529	·8925681	·1074319	6·401
78	1213	·0838608	·1205739	·8911789	·1088211	6·111
79	1081	·0338257	·1072100	·8815911	·1184089	5·796
80	953	2·9790929	·0644580	·8782791	·1217209	5·507
81	837	·9227255	·0492180	·8661888	·1338112	5·201
82	725	·8603380	·0086002	·8593103	·1406897	4·928
83	623	·7944880	1·9731279	·8491171	·1508829	4·652
84	529	·7234557	·9242793	·8412100	·1587900	4·390
85	445	·6483600	·8920946	·8247191	·1752809	4·125
86	367	·5646661	·8512583	·8065395	·1934605	3·895
87	296	·4712917	·8061800	·7837838	·2162162	3·709
88	232	·3654880	·7075702	·7801724	·2198276	3·595
89	181	·2576786	·5910646	·7845304	·2154696	3·467
90	142	·1522883	·5682017	·7394366	·2605634	3·282
91	105	·0211893	·4771213	·7142857	·2857143	3·262
92	75	1·8750613	·3222193	·7200000	·2800000	3·367
93	54	·7323938	·1461280	·7407407	·2592593	3·481
94	40	·6020600	·0000000	·7500000	·2500000	3·525
95	30	·4771213	0·8450980	·7666667	·2333333	3·533
96	23	·3617278	·6989700	·7826087	·2173913	3·457
97	18	·2552725	·6020600	·7777778	·2222222	3·278
98	14	·1461280	·4771213	·7857143	·2142857	3·071
99	11	·0413927	·3010300	·8181818	·1818182	2·773
100	9	0·9542425	·3010300	·7777778	·2222222	2·278
101	7	·8450980	·3010300	·7142857	·2857143	1·786
102	5	·6989700	·3010300	·6000000	·4000000	1·300
103	3	·4771213	·3010300	·3333333	·6666667	·833
104	1	·0000000	·0000000			·500

Single Life (Carlisle), 3 per Cent.

Age.	Present Value of Annuity for Life.		Annuity equivalent to £1 now.	Assurance of £1 on x. Single Premium.	Assurance of £1 on x. Annual Premium.	Present Value of Reversion to Perpetuity after x's life.
x	a_x	log. a_x	$\frac{1}{a_x}$	${}_xA$	${}_x\Pi$	${}_xa$
0	17·31982	1·2385434	·0577373	·4664130	·0254595	16·01351
1	20·08429	1·3028565	·0497902	·3858946	·0183025	13·24904
2	21·50046	1·3324479	·0465106	·3446463	·0153173	11·83287
3	22·68295	1·3556995	·0440860	·3102055	·0130983	10·65038
4	23·28488	1·3670740	·0429463	·2926734	·0120517	10·04845
5	23·69267	1·3746139	·0422071	·2807963	·0113716	9·64066
6	23·84574	1·3774108	·0419362	·2763374	·0111221	9·48759
7	23·86655	1·3777896	·0418996	·2757315	·0110885	9·46678
8	23·80069	1·3765895	·0420156	·2776498	·0111952	9·53264
9	23·67706	1·3743278	·0422350	·2812506	·0113973	9·65627
10	23·51195	1·3712888	·0425315	·2860597	·0116702	9·82138
11	23·32653	1·3678501	·0428696	·2914607	·0119812	10·00680
12	23·14267	1·3644136	·0432112	·2968148	·0122942	10·19066
13	22·95675	1·3609104	·0435602	·3022303	·0126157	10·37658
14	22·76863	1·3573369	·0439201	·3077096	·0129460	10·56470
15	22·58198	1·3537620	·0442831	·3131464	·0132790	10·75135
16	22·40432	1·3503317	·0446343	·3183209	·0136009	10·92901
17	22·23229	1·3469842	·0449796	·3233312	·0139173	11·10104
18	22·05870	1·3435799	·0453336	·3283874	·0142414	11·27463
19	21·87976	1·3400425	·0457044	·3335994	·0145805	11·45357
20	21·69527	1·3363652	·0460930	·3389726	·0149358	11·63806
21	21·50503	1·3325401	·0465007	·3445135	·0153083	11·82830
22	21·30511	1·3284837	·0469371	·3503368	·0157066	12·02822
23	21·09882	1·3242583	·0473960	·3563451	·0161251	12·23431
24	20·88594	1·3198541	·0478791	·3625452	·0165652	12·44739
25	20·66620	1·3152607	·0483882	·3689454	·0170286	12·66713
26	20·44303	1·3105452	·0489164	·3754457	·0175090	12·89030
27	20·21262	1·3056226	·0494740	·3821568	·0180155	13·12071
28	19·98198	1·3006386	·0500451	·3888743	·0185337	13·35135
29	19·76205	1·2958319	·0506020	·3952803	·0190386	13·57128
30	19·55694	1·2913009	·0511327	·4012541	·0195192	13·77639
31	19·34924	1·2866638	·0516816	·4073039	·0200157	13·98409
32	19·13521	1·2818332	·0522597	·4135377	·0205380	14·19812
33	18·91097	1·2767137	·0528793	·4200688	·0210974	14·42236
34	18·67606	1·2712854	·0535445	·4269108	·0216970	14·65727
35	18·43366	1·2656116	·0542486	·4339711	·0223309	14·89967
36	18·18344	1·2596761	·0549951	·4412589	·0230021	15·14989
37	17·92868	1·2535484	·0557765	·4486792	·0237037	15·40465
38	17·66920	1·2472169	·0565957	·4562369	·0244379	15·66413
39	17·40480	1·2406691	·0574554	·4639380	·0252074	15·92853
40	17·14242	1·2340721	·0583348	·4715802	·0259932	16·19091
41	16·88934	1·2276127	·0592090	·4789513	·0267730	16·44399
42	16·63900	1·2211272	·0600998	·4862427	·0275663	16·69433
43	16·38808	1·2145281	·0610200	·4935510	·0283845	16·94525
44	16·12951	1·2076211	·0619982	·5010825	·0292526	17·20382
45	15·86292	1·2003832	·0630401	·5088467	·0301755	17·47041
46	15·58441	1·1926903	·0641667	·5169591	·0311714	17·74892
47	15·29335	1·1845026	·0653879	·5254366	·0322485	18·03998
48	14·98559	1·1756738	·0667308	·5344005	·0334301	18·34774
49	14·65328	1·1659349	·0682441	·5440790	·0347581	18·68005
50	14·30226	1·1554047	·0699190	·5543026	·0362236	19·03107

Single Life (Carlisle), 3 per Cent.

x	a_x	log. a_x	$\frac{1}{a_x}$	${}_xA$	${}_x\Pi$	${}_xa$
51	13·93170	1·1440040	·0717788	·5650965	·0378454	19·40163
52	13·55770	1·1321861	·0737588	·5759891	·0395659	19·77563
53	13·17999	1·1199152	·0758726	·5869908	·0413957	20·15334
54	12·79820	1·1071488	·0781360	·5981106	·0433470	20·53513
55	12·40871	1·0937265	·0805886	·6094552	·0454522	20·92462
56	12·01422	1·0796955	·0832347	·6209451	·0477128	21·31911
57	11·61432	1·0649936	·0861006	·6325926	·0501488	21·71901
58	11·21806	1·0499179	·0891419	·6441339	·0527198	22·11527
59	10·84124	1·0350790	·0922404	·6551098	·0553244	22·49209
60	10·49139	1·0208329	·0953163	·6652993	·0578955	22·84194
61	10·18055	1·0077714	·0982265	·6743528	·0603148	23·15278
62	9·87514	0·9945431	·1012644	·6832485	·0628266	23·45819
63	9·56667	0·9807609	·1045295	·6922332	·0655110	23·76666
64	9·24556	0·9659332	·1081600	·7015856	·0684770	24·08777
65	8·91735	0·9502357	·1121410	·7111452	·0717072	24·41598
66	8·57841	0·9334070	·1165717	·7210172	·0752752	24·75492
67	8·22797	0·9152929	·1215366	·7312242	·0792400	25·10536
68	7·86847	0·8958901	·1270896	·7416952	·0836328	25·46486
69	7·49932	0·8750216	·1333148	·7524470	·0885303	25·83401
70	7·12322	0·8526761	·1403860	·7634010	·0939777	26·21011
71	6·73646	0·8284320	·1484460	·7746662	·1001318	26·59687
72	6·37242	0·8043045	·1569262	·7852690	·1065144	26·96091
73	6·04346	0·7812855	·1654682	·7948507	·1128495	27·28987
74	5·75222	0·7598357	·1738451	·8033330	·1189730	27·58111
75	5·51196	0·7413064	·1814235	·8103310	·1244373	27·82137
76	5·27691	0·7223796	·1895049	·8171776	·1301879	28·05642
77	5·05913	0·7040755	·1976626	·8235206	·1359141	28·27420
78	4·83810	0·6846747	·2066928	·8299582	·1421624	28·49523
79	4·59174	0·6619774	·2177823	·8371338	·1497090	28·74159
80	4·36472	0·6399568	·2291096	·8437460	·1572767	28·96861
81	4·11872	0·6147623	·2427938	·8509110	·1662351	29·21461
82	3·89764	0·5908018	·2565655	·8573500	·1750537	29·43569
83	3·67185	0·5648854	·2723420	·8639268	·1849217	29·66148
84	3·45405	0·5383281	·2895155	·8702706	·1953887	29·87928
85	3·22923	0·5090986	·3096716	·8768188	·2073236	30·10410
86	3·03301	0·4818745	·3297050	·8825332	·2182272	30·30032
87	2·87335	0·4583878	·3480264	·8871838	·2290485	30·45998
88	2·77597	0·4434151	·3602342	·8900200	·2357062	30·55736
89	2·66490	0·4256802	·3752493	·8932556	·2437328	30·66843
90	2·49871	0·3977157	·4002066	.8980958	·2566936	30·83462
91	2·48058	0·3945536	·4031312	·8986238	·2581820	30·85275
92	2·57700	0·4111140	·3880484	·8958152	·2504376	30·75633
93	2·68654	0·4291934	·3722260	·8926250	·2421310	30·64679
94	2·73563	0·4370581	·3655460	·8911950	·2385659	30·59770
95	2·75694	0·4404269	·3627213	·8905742	·2370479	30·57639
96	2·70389	0·4319885	·3698380	·8921204	·2408606	30·62944
97	2·55862	0·4080049	·3908364	·8963510	·2518820	30·77471
98	2·38834	0·3780954	·4187016	·9013106	·2660039	30·94499
99	2·13090	0·3285613	·4692873	·9088088	·2902716	31·20243
100	1·68256	0·2259697	·5943372	·9218672	·3436526	31·65077
101	1·22819	0·0892639	·8142094	·9351012	·4196694	32·10514
102	·77104	1·8870787	1·296944	·9484160	·5355127	32·56229
103	·32362	1·5100414	3·0900	·9614477	·7263753	33·00971
104				·9708738	·9708738	

Single Life Annuities (Carlisle).

Age.	3½ per Cent.	4.	5.	6.	8.	10.
0	15·6719	14·2816	12·0830	10·4397	8·1792	6·7163
1	18·1708	16·5546	13·9949	12·0789	9·4402	7·7317
2	19·4556	17·7262	14·9829	12·9262	10·0893	8·2505
3	20·5346	18·7151	15·8243	13·6530	10·6530	8·7065
4	21·0915	19·2313	16·2708	14·0430	10·9589	8·9539
5	21·4753	19·5920	16·5896	14·3258	11·1857	9·1405
6	21·6298	19·7450	16·7348	14·4605	11·2995	9·2371
7	21·6652	19·7902	16·7900	14·5188	11·3552	9·2868
8	21·6225	19·7644	16·7860	14·5265	11·3724	9·3003
9	21·5275	19·6911	16·7420	14·5000	11·3646	9·3046
10	21·3947	19·5834	16·6689	14·4486	11·3353	9·2873
11	21·2434	19·4586	16·5813	14·3845	11·2974	9·2621
12	21·0934	19·3349	16·4946	14·3215	11·2603	9·2377
13	20·9414	19·2094	16·4064	14·2570	11·2222	9·2125
14	20·7873	19·0818	16·3165	14·1912	11·1831	9·1866
15	20·6343	18·9553	16·2275	14·1262	11·1474	9·1614
16	20·4896	18·8364	16·1450	14·0671	11·1114	9·1403
17	20·3499	18·7221	16·0667	14·0118	11·0814	9·1222
18	20·2088	18·6066	15·9875	13·9559	11·0512	9·1043
19	20·0628	18·4865	15·9046	13·8970	11·0190	9·0849
20	19·9116	18·3617	15·8177	13·8348	10·9845	9·0640
21	19·7550	18·2320	15·7267	13·7692	10·9477	9·0413
22	19·5895	18·0939	15·6285	13·6974	10·9062	9·0150
23	19·4179	17·9502	15·5256	13·6215	10·8616	8·9863
24	19·2401	17·8006	15·4175	13·5413	10·8138	8·9553
25	19·0557	17·6449	15·3040	13·4563	10·7623	8·9212
26	18·8680	17·4859	15·1876	13·3687	10·7089	8·8856
27	18 6734	17·3203	15·0653	13·2761	10·6515	8·8467
28	18·4782	17·1541	14·9424	13·1828	10·5937	8·8076
29	18·2928	16·9968	14·8272	13·0964	10·5415	8·7734
30	18·1210	16·8521	14·7231	13·0199	10·4979	8·7465
31	17·9466	16·7051	14·6171	12·9420	10·4534	8·7193
32	17·7663	16·5525	14·5062	12·8600	10·4061	8·6902
33	17·5763	16·3907	14·3873	12·7711	10·3536	8·6570
34	17·3761	16·2194	14·2601	12·6748	10·3191	8·6194
35	17·1688	16·0412	14·1267	12·5731	10·2331	8·5786
36	16·9538	15·8558	13·9867	12·4656	10·1663	8·5342
37	16·7344	15·6659	13·8427	12·3544	10·0967	8·4878
38	16·5101	15·4713	13·6944	12·2394	10·0241	8·4390
39	16·2810	15·2718	13·5414	12·1203	9·9483	8·3878
40	16·0533	15·0736	13·3894	12·0019	9·8733	8·3374
41	15·8341	14·8831	13·2441	11·8897	9·8036	8·2920
42	15·6172	14·6947	13·1006	11·7791	9·7358	8·2486
43	15·3995	14·5053	12·9562	11·6679	9·6680	8·2058
44	15·1744	14·3087	12·8053	11·5510	9·5960	8·1599
45	14·9414	14·1046	12·6475	11·4280	9·5193	8·1108
46	14·6968	13·8893	12·4795	11·2957	9·4354	8·0559
47	14·4399	13·6621	12·3006	11·1536	9·3434	7·9948
48	14·1668	13·4191	12·1070	10·9980	9·2405	7·9246
49	13·8699	13·1531	11·8920	10·8226	9·1207	7·8403
50	13·5545	12·8690	11·6598	10·6311	8·9870	7·7439
51	13·2197	12·5658	11·4093	10·4223	8·8380	7·6342

Single Life Annuities (Carlisle).

Age.	3½ per Cent.	4.	5.	6.	8.	10.
52	12·8807	12·2579	11·1535	10·2078	8·6835	7·5194
53	12·5373	11·9450	10·8920	9·9873	8·5229	7·3990
54	12·1891	11·6267	10·6243	9·7602	8·3558	7·2725
55	11·8326	11·2996	10·3472	9·5237	8·1794	7·1372
56	11·4702	10·9661	10·0628	9·2793	7·9949	6·9942
57	11·1016	10·6256	9·7706	9·0266	7·8018	6·8426
58	10·7354	10·2865	9·4781	8·7724	7·6057	6·6875
59	10·3868	9·9633	9·1989	8·5294	7·4180	6·5388
60	10·0631	9·6633	8·9399	8·3043	7·2445	6·4019
61	9·7762	9·3981	8·7121	8·1075	7·0952	6·2861
62	9·4939	9·1368	8·4872	7·9129	6·9472	6·1714
63	9·2080	8·8715	8·2579	7·7137	6·7945	6·0523
64	8·9093	8·5933	8·0156	7·5017	6·6299	5·9223
65	8·6031	8·3072	7·7650	7·2811	6·4569	5·7844
66	8·2857	8·0097	7·5026	7·0487	6·2722	5·6355
67	7·9564	7·6998	7·2274	6·8032	6·0747	5·4742
68	7·6174	7·3798	6·9413	6·5464	5·8654	5·3013
69	7·2680	7·0488	6·6434	6·2772	5·6432	5·1155
70	6·9109	6·7094	6·3358	5·9975	5·4095	4·9176
71	6·5423	6·3577	6·0149	5·7035	5·1604	4·7040
72	6·1947	6·0255	5·7106	5·4238	4·9217	4·4979
73	5·8802	5·7246	5·4345	5·1695	4·7040	4·3095
74	5·6018	5·4581	5·1897	4·9440	4·5108	4·1421
75	5·3724	5·2390	4·9892	4·7600	4·3545	4·0079
76	5·1477	5·0240	4·7920	4·5785	4·1996	3·8742
77	4·9394	4·8247	4·6091	4·4103	4·0562	3·7509
78	4·7277	4·6217	4·4221	4·2376	3·9080	3·6226
79	4·4906	4·3934	4·2102	4·0404	3·7360	3·4714
80	4·2720	4·1829	4·0145	3·8581	3·5769	3·3314
81	4·0343	3·9531	3·7994	3·6563	3·3984	3·1724
82	3·8206	3·7463	3·6056	3·4744	3·2373	3·0288
83	3·6017	3·5341	3·4057	3·2859	3·0687	2·8771
84	3·3902	3·3286	3·2115	3·1019	2·9030	2·7272
85	3·1712	3·1151	3·0085	2·9087	2·7271	2·5662
86	2·9798	2·9283	2·8304	2·7385	2·5713	2·4228
87	2·8238	2·7759	2·6847	2·5992	2·4431	2·3043
88	2·7289	2·6834	2·5966	2·5151	2·3663	2·2339
89	2·6203	2·5770	2·4946	2·4173	2·2758	2·1498
90	2·4568	2·4162	2·3388	2·2660	2·1329	2·0142
91	2·4388	2·3983	2·3211	2·2484	2·1152	1·9964
92	2·5338	2·4920	2·4120	2·3366	2·1982	2·0745
93	2·6424	2·5995	2·5175	2·4400	2·2975	2·1694
94	2·6921	2·6498	2·5685	2·4916	2·3496	2·2215
95	2·7151	2·6743	2·5960	2·5215	2·3834	2·2582
96	2·6654	2·6278	2·5553	2·4863	2·3580	2·2400
97	2·5250	2·4920	2·4284	2·3675	2·2533	2·1485
98	2·3600	2·3322	2·2783	2·2266	2·1289	2·0385
99	2·1087	2·0870	2·0447	2·0038	1·9263	1·8540
100	1·6676	1·6528	1·6240	1·5961	1·5427	1·4925
101	1·2191	1·2101	1·1924	1·1752	1·1422	1·1109
102	·7664	·7618	·7528	·7440	·7270	0·7107
103	·3221	·3205	·3175	·3145	·3086	0·3030
104						

Single Life Annuities (Carlisle).

To pay a high Rate of Interest, and to replace Capital by Investments at 3 per Cent.

Age.	Annual Rate of Interest.				
	4 per Cent.	5 per Cent.	6 per Cent.	8 per Cent.	10 per Cent.
0	14·763	12·864	11·398	9·282	7·829
1	16·725	14·329	12·533	10·021	8·348
2	17·696	15·035	13·070	10·362	8·583
3	18·489	15·604	13·498	10·629	8·765
4	18·887	15·886	13·709	10·759	8·854
5	19·154	16·075	13·849	10·845	8·912
6	19·254	16·146	13·901	10·877	8·933
7	19·268	16·155	13·908	10·881	8·937
8	19·225	16·125	13·886	10·868	8·927
9	19·144	16·068	13·844	10·842	8·910
10	19·036	15·990	13·787	10·807	8·886
11	18·914	15·906	13·723	10·768	8·860
12	18·793	15·820	13·659	10·728	8·833
13	18·671	15·733	13·594	10·688	8·806
14	18·546	15·645	13·528	10·647	8·778
15	18·422	15·556	13·462	10·606	8·750
16	18·304	15·472	13·399	10·567	8·723
17	18·189	15·389	13·337	10·529	8·697
18	18·072	15·306	13·274	10·490	8·671
19	17·952	15·220	13·209	10·449	8·643
20	17·828	15·130	13·142	10·407	8·614
21	17·697	15·037	13·072	10·363	8·584
22	17·563	14·939	12·998	10·316	8·552
23	17·423	14·838	12·921	10·267	8·518
24	17·277	14·732	12·840	10·217	8·483
25	17·127	14·623	12·757	10·164	8·447
26	16·973	14·510	12·672	10·110	8·409
27	16·814	14·394	12·583	10·053	8·370
28	16·654	14·277	12·493	9·995	8·330
29	16·501	14·164	12·407	9·940	8·292
30	16·358	14·058	12·325	9·888	8·255
31	16·212	13·951	12·243	9·835	8·218
32	16·062	13·839	12·157	9·779	8·179
33	15·903	13·721	12·066	9·720	8·138
34	15·737	13·597	11·970	9·658	8·094
35	15·565	13·468	11·870	9·593	8·048
36	15·386	13·334	11·765	9·524	8·000
37	15·203	13·197	11·658	9·454	7·951
38	15·016	13·056	11·548	9·381	7·899
39	14·825	12·911	11·434	9·306	7·846
40	14·634	12·766	11·321	9·231	7·792
41	14·449	12·625	11·210	9·157	7·739
42	14·265	12·484	11·099	9·083	7·686
43	14·081	12·343	10·987	9·007	7·632
44	13·889	12·195	10·870	8·929	7·576
45	13·691	12·042	10·748	8·846	7·517
46	13·483	11·881	10·619	8·759	7·453
47	13·265	11·711	10·484	8·666	7·386
48	13·033	11·530	10·338	8·567	7·314
49	12·781	11·332	10·179	8·457	7·234
50	12·513	11·121	10·008	8·339	7·147
51	12·228	10·896	9·825	8·212	7·053

Single Life Annuities (Carlisle).

To pay a high Rate of Interest and to replace Capital by Investments at 3 per Cent.

Age.	Annual Rate of Interest.				
	4 per Cent.	5 per Cent.	6 per Cent.	8 per Cent.	10 per Cent.
52	11·939	10·666	9·638	8·030	6·956
53	11·645	10·430	9·445	7·945	6·855
54	11·346	10·190	9·248	7·804	6·751
55	11·039	9·941	9·043	7·658	6·641
56	10·726	9·687	8·831	7·506	6·526
57	10·406	9·425	8·613	7·348	6·406
58	10·086	9·162	8·393	7·187	6·284
59	9·781	8·909	8·181	7·030	6·164
60	9·495	8·672	7·980	6·882	6·049
61	9·240	8·458	7·799	6·746	5·944
62	8·988	8·247	7·618	6·611	5·839
63	8·731	8·030	7·433	6·471	5·730
64	8·463	7·803	7·238	6·323	5·613
65	8·187	7·568	7·035	6·167	5·490
66	7·901	7·322	6·823	6·003	5·360
67	7·602	7·065	6·599	5·830	5·221
68	7·295	6·799	6·366	5·647	5·074
69	6·976	6·521	6·122	5·454	4·918
70	6·650	6·235	5·869	5·252	4·753
71	6·311	5·937	5·604	5·039	4·578
72	5·991	5·652	5·350	4·833	4·407
73	5·699	5·392	5·116	4·641	4·247
74	5·439	5·159	4·906	4·467	4·101
75	5·224	4·965	4·730	4·321	3·977
76	5·012	4·773	4·556	4·175	3·853
77	4·816	4·594	4·392	4·038	3·736
78	4·615	4·411	4·225	3·896	3·614
79	4·390	4·206	4·036	3·734	3·475
80	4·182	4·015	3·859	3·583	3·343
81	3·956	3·805	3·666	3·415	3·197
82	3·751	3·616	3·490	3·262	3·062
83	3·542	3·421	3·308	3·102	2·921
84	3·339	3·231	3·130	2·945	2·782
85	3·128	3·033	2·944	2·780	2·634
86	2·944	2·860	2·780	2·634	2·502
87	2·793	2·718	2·645	2·512	2·392
88	2·701	2·630	2·563	2·438	2·324
89	2·596	2·530	2·468	2·352	2·246
90	2·438	2·380	2·324	2·221	2·127
91	2·421	2·364	2·309	2·207	2·114
92	2·512	2·451	2·392	2·283	2·183
93	2·616	2·550	2·486	2·368	2·261
94	2·663	2·594	2·528	2·407	2·296
95	2·683	2·613	2·546	2·423	2·311
96	2·633	2·565	2·501	2·382	2·274
97	2·495	2·434	2·376	2·268	2·170
98	2·333	2·279	2·229	2·134	2·046
99	2·086	2·044	2·003	1·926	1·854
100	1·655	1·628	1·602	1·552	1·505
101	1·213	1·199	1·185	1·157	1·131
102	·765	·759	·754	·742	·732
103	·323	·322	·321	·318	·316

Based on Dr. Farr's English Life Tables.—No. 2, Males.

Age.	No. of Living.	Logarithm of No. Living.	Logarithm of No. Dying.	Probability of Living one Year.	Expectation of Life.
0	5126235	6·7097985	5·9123979	·8405590	40·36
1	4308904	·6343668	·4494676	·9346720	46·95
2	4027411	·6050260	·1624210	·9639090	49·20
3	3882059	·5890621	4·9813020	·9753260	50·03
4	3786273	·5782119	·8416785	·9816570	50·28
5	3716822	·5701717	·6996036	·9865280	50·21
6	3666749	·5642811	·5641095	·9900040	49·89
7	3630096	·5599181	·4959743	·9913690	49·39
8	3598765	·5561535	·4157577	·9927620	48·81
9	3572718	·5529987	·3612744	·9935640	48·16
10	3549742	·5501968	·2846563	·9945739	47·47
11	3530482	·5478339	·2285543	·9952060	46·73
12	3513556	·5457469	·2218835	·9952560	45·95
13	3496888	·5436817	·2173786	·9952830	45·17
14	3480392	·5416283	·2801457	·9945230	44·38
15	3461331	·5392431	·2356042	·9950300	43·62
16	3444128	·5370793	·2907467	·9943290	42·84
17	3424596	·5346094	·3555281	·9933790	42·08
18	3401922	·5317244	·4116534	·9924154	41·35
19	3376120	·5284179	·4291222	·9920437	40·67
20	3349259	·5249487	·4333697	·9919012	39·99
21	3322134	·5214171	·4374334	·9917585	39·31
22	3294754	·5178230	·4413652	·9916140	38·63
23	3267125	·5141657	·4452772	·9914670	37·96
24	3239246	·5104440	·4491389	·9913165	37·28
25	3211118	·5066563	·4530583	·9911610	36·60
26	3182735	·5028005	·4570791	·9909990	35·92
27	3154088	·4988738	·4612584	·9908295	35·24
28	3125164	·4948728	·4656059	·9906517	34·57
29	3095949	·4907937	·4701899	·9904635	33·89
30	3066424	·4866321	·4750316	·9902639	33·21
31	3036568	·4823830	·4801220	·9900520	32·53
32	3006360	·4780410	·4855085	·9898266	31·85
33	2975775	·4736001	·4912216	·9895860	31·17
34	2944785	·4690537	·4972062	·9893300	30·50
35	2913365	·4643948	·5036000	·9890557	29·82
36	2881479	·4596155	·5102634	·9887630	29·15
37	2849100	·4547077	·5172619	·9884507	28·47
38	2816195	·4496627	·5245779	·9881175	27·80
39	2782731	·4444713	·5321554	·9877625	27·13
40	2748678	·4391238	·5400540	·9873839	26·46
41	2714000	·4336098	·5481928	·9869807	25·79
42	2678666	·4279185	·5565919	·9865519	25·12
43	2642642	·4220384	·5651746	·9860957	24·46
44	2605899	·4159575	·5739734	·9856119	23·79
45	2568404	·4096634	·5828812	·9850989	23·13
46	2530132	·4031432	·5919212	·9845552	22·48
47	2491055	·3963833	·6010600	·9839795	21·82
48	2451147	·3893694	·6102235	·9833715	21·17
49	2410388	·3820870	·6193960	·9827292	20·52
50	2368759	·3745209	·6285320	·9820520	19·87
51	2326245	·3666554	·6376098	·9813385	19·22
52	2282833	·3584742	·6465508	·9805880	18·58
53	2238518	·3499606	·6553210	·9797992	17·94
54	2193299	·3410977	·6638799	·9789730	17·30
55	2147180	·3318684	·6721256	·9781095	16·66

Based on Dr. Farr's English Life Tables.—No. 2, Males.

Age. x	l_x	$\lambda.l_x$	$\lambda.d_x$	$\frac{l_{x+1}}{l_x}$	e_x
56	2100177	6·3222559	4·6860103	·9768930	16·02
57	2051647	·3121027	·7153430	·9746930	15·39
58	1999726	·3009706	·7406232	·9724794	14·77
59	1944693	·2888511	·7627836	·9702194	14·18
60	1886779	·2757211	·7824655	·9678824	13·60
61	1826180	·2615437	·8001601	·9654364	13·03
62	1763061	·2462674	·8162214	·9628504	12·48
63	1697564	·2298262	·8308708	·9600934	11·94
64	1629820	·2121397	·8442348	·9571354	11·42
65	1559959	·1931131	·8563724	·9539469	10·90
66	1488118	·1726373	·8672494	·9504990	10·41
67	1414455	·1505890	·8768065	·9467630	9·92
68	1339153	·1268303	·8848973	·9427114	9·45
69	1262435	·1012091	·8913758	·9383129	9·00
70	1184564	·0735587	·8960244	·9335542	8·55
71	1105855	·0436982	·8986265	·9283976	8·13
72	1026673	·0114323	·8989116	·9228240	7·72
73	947439	5·9765512	·8966199	·9168106	7·32
74	868622	·9388308	·8914482	·9103360	6·94
75	790738	·8980326	·8830934	·9033814	6·57
76	714338	·8539038	·8712342	·8959289	6·22
77	639996	·8061772	·8555434	·8879612	5·89
78	568292	·7545712	·8356842	·8794650	5·57
79	499793	·6987898	·8113001	·8704280	5·26
80	435034	·6385227	·7820424	·8608402	4·97
81	374494	·5734452	·7475206	·8506932	4·70
82	318580	·5032181	·7073913	·8399820	4·44
83	267601	·4274880	·6612351	·8287032	4·19
84	221762	·3458870	·6086758	·8168566	3·96
85	181148	·2580328	·5493099	·8044444	3·74
86	145723	·1635289	·4826878	·7914714	3·53
87	115336	·0619642	·4084265	·7779455	3·33
88	89725	4·9529134	·3260490	·7638769	3·14
89	68539	·8359368	·2351243	·7492787	2·97
90	51355	·7105801	·1351963	·7341670	2·80
91	37703	·5763749	·0257563	·7185608	2·65
92	27092	·4328384	3·9063350	·7024816	2·50
93	19032	·2794734	·7764833	·6859538	2·36
94	13055	·1157683	·6355843	·6690042	2·23
95	8734	3·9411971	·4833020	·6516617	2·11
96	5691	·7552194	·3186893	·6339589	2·00
97	3608	·5572804	·1417632	·6159287	1·89
98	2222	·3468109	2·9513375	·5976080	1·79
99	1328	·1232273	·7474118	·5789010	1·69
100	769	2·8859319	·5289167	·5602483	
101	431	·6343124	·2966652	·5412896	
102	233	·3677421	·0453230	·5222014	
103	122	·0855801	1·7853298	·5030264	
104	61	1·7871709	·4913617	·4838089	
105	30	·4718448	·2041200	·4645930	
106	14	·1389175	0·9030900	·4454235	
107	61333 6	0·7876906	·4771213	·4263444	
108	26149 3	·4174512	·3010300	·4140195	
109	10653 1	·0274720	·0000000		
110	0				

Based on Dr. Farr's English Life Tables.—No. 2, Males.

3 per Cent.

Age x.	Value of Life Annuity a_x.	Logarithm of Life Annuity.	Life Annuity equivalent to £1.	Single Premium for, or Present Value of, £1 at Death.	Annual Premium to secure £1 at Death.	Present Value of Reversion to Perpetuity after Death.
0	18·26598	1·2616427	·054747	·438855	·022779	15·06735
1	21·38266	·3300617	·046767	·348078	·015551	11·95067
2	22·56350	·3534063	·044319	·313685	·013312	10·76983
3	23·11054	·3638106	·043270	·297751	·012349	10·22279
4	23·40608	·3693287	·042724	·289143	·011847	9·92725
5	23·55874	·3721521	·042447	·284697	·011592	9·77459
6	23·59687	·3728544	·042379	·283586	·011529	9·73646
7	23·55018	·3719942	·042463	·284946	·011607	9·78315
8	23·46786	·3704736	·042611	·287344	·011744	9·86547
9	23·34813	·3682521	·042830	·290831	·011945	9·98520
10	23·20422	·3655670	·043096	·295022	·012189	10·12911
11	23·03075	·3623080	·043420	·300076	·012487	10·30258
12	22·83594	·3586188	·043791	·305749	·012827	10·49739
13	22·63313	·3547446	·044183	·311656	·013187	10·70020
14	22·42261	·3506861	·044598	·317788	·013568	10·91072
15	22·22248	·3467925	·044999	·323617	·013936	11·11085
16	22·00348	·3424914	·045447	·329996	·014345	11·32985
17	21·79284	·3383138	·045887	·336131	·014747	11·54049
18	21·59623	·3343779	·046304	·341857	·015129	11·73710
19	21·41412	·3307003	·046698	·347161	·015489	11·91921
20	21·23344	·3270204	·047096	·352424	·015851	12·09989
21	21·04901	·3232318	·047508	·357796	·016227	12·28432
22	20·86065	·3193279	·047937	·363282	·016618	12·47268
23	20·66818	·3153023	·048384	·368888	·017024	12·66515
24	20·47144	·3111484	·048849	·374618	·017447	12·86189
25	20·27028	·3068598	·049333	·380477	·017888	13·06305
26	20·06458	·3024301	·049839	·386468	·018347	13·26875
27	19·85423	·2978530	·050367	·392595	·018826	13·47910
28	19·63912	·2931220	·050919	·398861	·019325	13·69421
29	19·41918	·2882309	·051495	·405267	·019847	13·91415
30	19·19434	·2831732	·052099	·411815	·020393	14·13899
31	18·96456	·2779427	·052730	·418508	·020963	14·36877
32	18·72976	·2725322	·053391	·425347	·021559	14·60357
33	18·48993	·2669353	·054084	·432332	·022182	14·84340
34	18·24505	·2611450	·054809	·439464	·022835	15·08828
35	17·99508	·2551539	·055571	·446745	·023519	15·33825
36	17·74003	·2489544	·056370	·454174	·024235	15·59330
37	17·47989	·2425387	·057209	·461751	·024987	15·85344
38	17·21466	·2358983	·058090	·469476	·025775	16·11867
39	16·94432	·2290242	·059017	·477350	·026602	16·38901
40	16·66887	·2219062	·059992	·485373	·027470	16·66446
41	16·38831	·2145342	·061019	·493544	·028384	16·94502
42	16·10263	·2068967	·062102	·501865	·029344	17·23070
43	15·81180	·1989811	·063244	·510336	·030356	17·52153
44	15·51579	·1907738	·064450	·518958	·031422	17·81754
45	15·21456	·1822594	·065727	·527731	·032547	18·11877
46	14·90804	·1734206	·067078	·536659	·033735	18·42529
47	14·59617	·1642388	·068511	·545743	·034992	18·73716
48	14·27882	·1546924	·070034	·554986	·036324	19·05451
49	13·95588	·1447573	·071654	·564392	·037737	19·37745
50	13·62718	·1344059	·073383	·573966	·039240	19·70615

Based on Dr. Farr's English Life Tables.—No. 2, Males.
3 per Cent.

x	a_x	$\lambda.a_x$	$\frac{1}{a_x}$	${}_xA$	${}_x\Pi$	${}_xa$
51	13·29252	1·1236072	·075230	·583713	·040840	20·04081
52	12·95165	·1123251	·077210	·593641	·042550	20·38168
53	12·60429	·1005184	·079338	·603758	·044380	20·72904
54	12·25008	·0881390	·081632	·614075	·046345	21·08325
55	11·88859	·0751306	·084114	·624604	·048462	21·44474
56	11·51931	·0614264	·086811	·635360	·050750	21·81402
57	11·14553	·0471010	·089722	·646247	·053209	22·18780
58	10·77796	·0325368	·092782	·656952	·055778	22·55537
59	10·41547	·0176788	·096011	·667511	·058474	22·91786
60	10·05722	·0024779	·099431	·677945	·061312	23·27611
61	9·70268	0·9868917	·103064	·688273	·064308	23·63065
62	9·35155	·9708834	·106934	·698499	·067478	23·98178
63	9·00373	·9544224	·111065	·708629	·070837	24·32960
64	8·65931	·9374833	·115483	·718661	·074401	24·67402
65	8·31852	·9200462	·120214	·728587	·078187	25·01481
66	7·98171	·9020961	·125286	·738397	·082211	25·35162
67	7·64931	·8836225	·130731	·748079	·086490	25·68402
68	7·32182	·8646191	·136578	·757617	·091040	26·01151
69	6·99977	·8450840	·142862	·766997	·095877	26·33356
70	6·68372	·8250183	·149617	·776202	·101019	26·64961
71	6·37422	·8044269	·156882	·785217	·106481	26·95911
72	6·07180	·7833174	·164696	·794025	·112280	27·26153
73	5·77674	·7617002	·173101	·802613	·118432	27·55659
74	5·49020	·7395880	·182143	·810965	·124952	27·84313
75	5·21189	·7169950	·191869	·819071	·131856	28·12144
76	4·94239	·6939368	·202331	·826921	·139156	28·39094
77	4·68199	·6704307	·213584	·834505	·146868	28·65134
78	4·43092	·6464942	·225687	·841818	·155005	28·90241
79	4·18935	·6221469	·238700	·848855	·163576	29·14398
80	3·95737	·5974070	·252693	·855612	·172594	29·37596
81	3·73501	·5722921	·267737	·862087	·182066	29·59832
82	3·52225	·5468207	·283909	·868285	·192002	29·81108
83	3·31906	·5210155	·301290	·874202	·202406	30·01427
84	3·12526	·4948859	·319974	·879847	·213282	30·20807
85	2·94072	·4684542	·340052	·885223	·224634	30·39261
86	2·76527	·4417371	·361629	·890330	·236459	30·56806
87	2·59865	·4147477	·384815	·895186	·248757	30·73468
88	2·44067	·3875088	·409724	·899788	·261520	30·89266
89	2·29087	·3600004	·436515	·904151	·274738	31·04246
90	2·14919	·3322749	·465292	·908282	·288421	31·18414
91	2·01509	·3042938	·496257	·912181	·302539	31·31824
92	1·88831	·2760739	·529573	·915871	·317097	31·44502
93	1·76862	·2476342	·565413	·919370	·332065	31·56471
94	1·65580	·2190068	·603939	·922647	·347408	31·67753
95	1·54892	·1900294	·645611	·925765	·363197	31·78441
96	1·44911	·1611013	·690079	·928571	·379185	31·88422
97	1·35511	·1319752	·737946	·931371	·395482	31·97822
98	1·26348	·1015688	·791464	·933835	·412671	32·06985
99	1·18015	·0719372	·847350	·936393	·429558	32·15318
100	1·09962	·0412433	·909404	·938677	·447150	32·23371

Single Life Annuities, *founded on the* English Table. No. 2, Males.

Age.	4 per Cent.	5.	6.
0	15·0764	12·7584	10·9821
1	17·6536	14·9374	12·8491
2	18·6429	15·7805	13·5720
3	19·1146	16·1899	13·9864
4	19·3821	16·4295	14·2006
5	19·5340	16·5733	14·3339
6	19·5928	16·6396	14·4014
7	19·5823	16·6480	14·4197
8	19·5429	16·6325	14·4179
9	19·4728	16·5915	14·3944
10	19·3828	16·5339	14·3568
11	19·2680	16·4553	14·3003
12	19·1353	16·3613	14·2324
13	18·9956	16·2612	14·1582
14	18·8490	16·1552	14·0754
15	18·7109	16·0564	14·0021
16	18·5565	15·9441	13·9163
17	18·4089	15·8361	13·8355
18	18·2728	15·7387	13·7633
19	18·1490	15·6519	13·7006
20	18·0263	15·5663	13·6398
21	17·9005	15·4781	13·5755
22	17·7712	15·3871	13·5096
23	17·6383	15·2930	13·4414
24	17·5017	15·1959	13·3704
25	17·3612	15·0955	13·2968
26	17·2167	14·9916	13·2203
27	17·0680	14·8841	13·1408
28	16·9150	14·7730	13·0582
29	16·7576	14·6580	12·9723
30	16·5957	14·5391	12·8830
31	16·4293	14·4162	12·7934
32	16·2581	14·2891	12·6973
33	16·0822	14·1577	12·5975
34	15·9015	14·0220	12·4939
35	15·7159	13·8819	12·4149
36	15·5254	13·7373	12·2748
37	15·3300	13·5881	12·1591
38	15·1294	13·4342	12·0393
39	14·9238	13·2756	11·9151
40	14·7131	13·1120	11·7865
41	14·4971	12·9435	11·6533
42	14·2759	12·7700	11·5155
43	14·0493	12·5913	11·3728
44	13·8173	12·4073	11·2251
45	13·5798	12·2178	11·0723
46	13·3366	12·0227	10·9142
47	13·0876	11·8219	10·7505
48	12·8327	11·6151	10·5811
49	12·5717	11·4021	10·4056
50	12·3044	11·1826	10·2235

Single Life Annuities, *founded on the* English Table. No. 2, Males.

Age.	4 per Cent.	5	6
51	12·0304	10·9563	10·0353
52	11·7495	10·7229	9·8397
53	11·4614	10·4819	9·6365
54	11·1656	10·2330	9·4253
55	10·8617	9·9754	9·2054
56	10·5490	9·7086	8·9761
57	10·2304	9·4351	8·7397
58	9·9159	9 1641	8·5047
59	9·6044	8·8946	8·2701
60	9·2951	8·6260	8·0353
61	8·9877	8·3579	7·8001
62	8·6819	8·0899	7·5641
63	8·3775	7·8222	7·3273
64	8·0748	7·5547	7·0898
65	7·7738	7·2876	6·8517
66	7·4751	7·0214	6·6135
67	7·1790	6·7565	6·3754
68	6·8859	6·4932	6·1379
69	6·5966	6·2322	5·9015
70	6·3114	5·9740	5·6668
71	6·0311	5·7191	5·4344
72	5·7561	5·4682	5·2047
73	5·4870	5·2218	4·9784
74	5·2243	4·9804	4·7559
75	4·9684	4·7445	4·5379
76	4·7198	4·5145	4·3246
77	4·4787	4·2908	4·1165
78	4·2456	4·0738	3·9141
79	4·0206	3·8637	3·7176
80	3·8038	3·6608	3·5272
81	3·5955	3·4652	3·3433
82	3·3956	3·2772	3·1659
83	3·2041	3·0966	2·9951
84	3·0211	2·9235	2·8311
85	2·8464	2·7579	2·6737
86	2·6799	2·5997	2·5231
87	2·5214	2·4488	2·3792
88	2·3707	2·3055	2·2366
89	2·2277	2·1695	2·1108
90	2·0920	2·0405	1·9861
91	1·9635	1·9178	1·8676
92	1·8419	1·8036	1·7550
93	1·7269	1·6864	1·6482
94	1·6182	1·5935	1·5469
95	1·5141	1·4983	1·4511
96	1·4187	1·4066	1·3603
97	1·3273	1·3223	1 2745
98	1·2411	1·2344	1·1933
99	1·1600	1·1316	1·1166
100	1·0833	1·0660	1·0442

Single Life Annuities (English).—No. 2, Males.

To pay a high Rate of Interest and replace Capital by Investment of Surplus at 3 per Cent.

Age.	Annual Rate of Interest.				
	4 per Cent.	5.	6.	8.	10.
0	15·445	13·378	11·800	9·547	8·016
1	17·616	14·977	13·026	10·334	8·564
2	18·410	15·548	13·456	10·602	8·747
3	18·772	15·805	13·648	10·722	8·828
4	18·968	15·943	13·751	10·785	8·871
5	19·067	16·014	13·803	10·817	8·893
6	19·092	16·031	13·816	10·825	8·898
7	19·061	16·009	13·800	10·815	8·892
8	19·007	15·972	13·772	10·798	8·880
9	18·929	15·916	13·731	10·772	8·863
10	18·834	15·849	13·680	10·742	8·842
11	18·720	15·768	13·620	10·704	8·817
12	18·590	15·676	13·552	10·662	8·788
13	18·456	15·581	13·480	10·618	8·758
14	18·316	15·480	13·405	10·571	8·726
15	18·182	15·385	13·334	10·526	8·696
16	18·035	15·280	13·254	10·477	8·662
17	17·893	15·178	13·177	10·429	8·629
18	17·761	15·082	13·105	10·384	8·598
19	17·637	14·993	13·038	10·341	8·569
20	17·514	14·904	12·971	10·299	8·540
21	17·389	14·813	12·902	10·256	8·510
22	17·260	14·720	12·831	10·211	8·479
23	17·128	14·623	12·758	10·164	8·447
24	16·993	14·525	12·682	10·116	8·414
25	16·854	14·423	12·605	10·067	8·380
26	16·712	14·319	12·525	10·016	8·345
27	16·565	14·211	12·443	9·963	8·308
28	16·415	14·101	12·359	9·909	8·270
29	16·261	13·987	12·271	9·853	8·231
30	16·103	13·870	12·180	9·794	8·190
31	15·941	13·749	12·088	9·734	8·148
32	15·775	13·626	11·992	9·672	8·104
33	15·605	13·498	11·893	9·608	8·059
34	15·430	13·367	11·791	9·541	8·012
35	15·251	13·233	11·686	9·472	7·964
36	15·067	13·094	11·578	9·401	7·913
37	14·879	12·952	11·467	9·328	7·861
38	14·686	12·806	11·352	9·252	7·807
39	14·489	12·656	11·234	9·173	7·751
40	14·287	12·501	11·112	9·091	7·693
41	14·081	12·343	10·987	9·007	7·632
42	13·869	12·180	10·858	8·920	7·570
43	13·653	12·013	10·725	8·830	7·505
44	13·432	11·841	10·588	8·737	7·438
45	13·205	11·665	10·446	8·641	7·368
46	12·974	11·484	10·301	8·541	7·295
47	12·737	11·298	10·151	8·438	7·220
48	12·495	11·107	9·997	8·331	7·141
49	12·247	10·911	9·837	8·220	7·059
50	11·993	10·709	9·673	8·105	6·974

Single Life Annuities (English).—No. 2, Males.

To pay a high Rate of Interest and replace Capital by Investment of Surplus at 3 per Cent.

Age.	Annual Rate of Interest.				
	4 per Cent.	5.	6.	8.	10.
51	11·733	10·501	9·503	7·985	6·886
52	11·467	10·287	9·327	7·861	6·793
53	11·193	10·067	9·146	7·732	6·696
54	10·913	9·839	8·958	7·597	6·595
55	10·626	9·605	8·763	7·456	7·489
56	10·329	9·362	8·561	7·309	6·377
57	10·028	9·114	8·353	7·157	6·261
58	9·729	8·867	8·145	7·004	6·143
59	9·433	8·620	7·936	6·845	6·024
60	9·138	8·373	7·726	6·692	5·902
61	8·845	8·126	7·515	6·533	5·778
62	8·552	7·878	7·303	6·372	5·652
63	8·260	7·630	7·089	6·209	5·523
64	7·969	7·381	6·874	6·043	5·391
65	7·680	7·132	6·657	5·875	5·257
66	7·392	6·883	6·440	5·705	5·121
67	7·106	6·634	6·222	5·533	4·982
68	6·822	6·387	6·003	5·360	4·841
69	6·542	6·140	5·785	5·185	4·698
70	6·265	5·896	5·567	5·010	4·553
71	5·992	5·653	5·351	4·834	4·408
72	5·724	5·414	5·136	4·658	4·261
73	5·461	5·179	4·924	4·482	4·114
74	5·204	4·947	4·714	4·308	3·966
75	4·954	4·720	4·507	4·134	3·819
76	4·710	4·498	4·304	3·963	3·672
77	4·472	4·281	4·105	3·794	3·526
78	4·243	4·070	3·911	3·627	3·382
79	4·021	3·865	3·722	3·464	3·239
80	3·807	3·667	3·537	3·304	3·099
81	3·600	3·475	3·359	3·147	2·961
82	3·402	3·290	3·186	2·995	2·826
83	3·212	3·112	3·019	2·847	2·693
84	3·031	2·942	2·857	2·703	2·564
85	2·857	2·777	2·702	2·564	2·439
86	2·691	2·620	2·553	2·429	2·317
87	2·533	2·470	2·411	2·300	2·199
88	2·383	2·327	2·274	2·175	2·085
89	2·240	2·191	2·144	2·055	1·974
90	2·104	2·061	2·019	1·941	1·868
91	1·975	1·937	1·900	1·831	1·766
92	1·853	1·820	1·787	1·725	1·668
93	1·738	1·708	1·680	1·625	1·574
94	1·629	1·603	1·577	1·529	1·484
95	1·525	1·502	1·480	1·438	1·397
96	1·428	1·408	1·389	1·351	1·316
97	1·337	1·319	1·302	1·269	1·238
98	1·248	1·232	1·217	1·188	1·161
99	1·166	1·153	1·140	1·114	1·090
100	1·088	1·076	1·065	1·042	1·021

Based on Dr. Farr's English Life Tables.—No. 2, Females.

Age.	No. of Living.	Logarithm of No. Living.	Logarithm of No. Dying.	Probability of living One Year.	Expectation of Life.
0	4873765	6·6878644	5·8071466	·8683924	42·04
1	4232339	·6265804	·4088265	·9394317	47·36
2	3975993	·5994456	·1644985	·9632672	49·38
3	3829944	·5831924	4·9938725	·9742557	50·25
4	3731345	·5718654	·8528092	·9809040	50·56
5	3660091	·5634919	·7120939	·9859200	50·53
6	3608557	·5573335	·5737880	·9896140	50·25
7	3571078	·5527994	·4793449	·9915560	49·77
8	3540924	·5491166	·3951516	·9929847	49·19
9	3516084	·5460592	·3694014	·9933422	48·53
10	3492674	·5431581	·2513218	·9948930	47·86
11	3474837	·5409345	·2370660	·9950322	47·10
12	3457576	·5387717	·2331739	·9950522	46·33
13	3440469	·5366176	·2498340	·9948332	45·56
14	3422693	·5343679	·3083296	·9940577	44·79
15	3402354	·5317795	·2969283	·9941769	44·06
16	3382542	·5292432	·4015212	·9925480	43·31
17	3357335	·5259947	·4265113	·9920472	42·64
18	3330635	·5225271	·4304943	·9919095	41·97
19	3303689	·5189992	·4345370	·9917672	41·31
20	3276491	·5154090	·4386214	·9916205	40·65
21	3249036	·5117545	·4427776	·9914689	39·99
22	3221317	·5080336	·4469253	·9913145	39·33
23	3193332	·5042441	·4511414	·9911507	38·67
24	3165074	·5003838	·4553931	·9909840	38·01
25	3136538	·4964505	·4596789	·9908120	37·35
26	3107719	·4924418	·4639527	·9906347	36·69
27	3078615	·4883554	·4682735	·9904519	36·04
28	3049220	·4841888	·4725809	·9902637	35·38
29	3019532	·4799396	·4769330	·9900692	34·72
30	2989545	·4756052	·4812276	·9898692	34·06
31	2959260	·4711831	·4855653	·9896635	33·41
32	2928671	·4666706	·4898601	·9894515	32·75
33	2897778	·4620651	·4941407	·9892332	32·10
34	2866579	·4573638	·4984208	·9890087	31·44
35	2835071	·4525639	·5026456	·9887777	30·78
36	2803255	·4476626	·5068296	·9885405	30·13
37	2771131	·4426570	·5109871	·9882965	29·47
38	2738698	·4375442	·5150654	·9880457	28·81
39	2705959	·4323212	·5191058	·9877880	28·16
40	2672914	·4269849	·5230958	·9875232	27·50
41	2639564	·4215322	·5269851	·9872517	26·84
42	2605914	·4159600	·5308270	·9869725	26·18
43	2571965	·4102651	·5345591	·9866862	25·52
44	2537723	·4044442	·5382217	·9863925	24·86
45	2503191	·3984940	·5417789	·9860912	24·19
46	2468375	·3924111	·5452452	·9857822	23·53
47	2433280	·3861921	·5485982	·9854655	22·86
48	2397913	·3798335	·5518158	·9851410	22·19
49	2362283	·3733319	·5549372	·9848085	21·52
50	2326396	·3666836	·5687530	·9840757	20·84
51	2289349	·3597121	·5883053	·9830725	20·17
52	2250596	·3522976	·6060372	·9820635	19·51
53	2210228	·3444371	·6223384	·9810372	18·85
54	2168316	·3361226	·6376098	·9799789	18·21
55	2124904	·3273393	·6523334	·9788652	17·57

Based on Dr. Farr's English Life Tables.—No. 2, Females.

Age.	No. of Living.	Logarithm of No. Living.	Logarithm of No. Dying.	Probability of living One Year.	Expectation of Life.
56	2079995	6·3180622	4·6668829	·9776737	16·94
57	2033556	·3082561	·6815126	·9763815	16·32
58	1985526	·2978756	·6964088	·9749657	15·70
59	1935820	·2868650	·7116723	·9734047	15·09
60	1884336	·2751584	·7273216	·9716752	14·49
61	1830963	·2626796	·7433137	·9697562	13·89
62	1775588	·2493422	·7595394	·9676257	13·31
63	1718105	·2350496	·7758506	·9652622	12·74
64	1658422	·2196949	·7920483	·9626449	12·18
65	1596471	·2031610	·8078934	·9597532	11·63
66	1532218	·1853206	·8231415	·9565672	11·10
67	1465669	·1660361	·8375064	·9530674	10·58
68	1396882	·1451597	·8507259	·9492349	10·08
69	1325969	·1225334	·8624892	·9450514	9·59
70	1253109	·0979889	·8725059	·9405000	9·12
71	1178549	·0713477	·8804763	·9355640	8·67
72	1102608	·0424211	·8861127	·9302270	8·23
73	1025675	·0110101	·8890943	·9244754	7·81
74	948212	5·9769055	·8891504	·9182952	7·40
75	870739	·9398879	·8859772	·9116742	7·02
76	793830	·8997276	·8792680	·9046010	6·65
77	718100	·8561847	·8687443	·8970660	6·30
78	644183	·8090091	·8540995	·8890602	5·96
79	572717	·7579403	·8350244	·8805774	5·65
80	504322	·7027078	·8112331	·8716114	5·34
81	439573	·6430307	·7824153	·8621588	5·06
82	378981	·5786179	·7482423	·8522170	4·79
83	322974	·5091681	·7084124	·8417858	4·53
84	271875	·4343697	·6625973	·8308664	4·29
85	225892	·3539009	·6104685	·8194619	4·06
86	185110	·2674297	·5516817	·8075772	3·84
87	149491	·1746138	·4859059	·7952194	3·64
88	118878	·0751008	·4127629	·7823969	3·44
89	93010	4·9685279	·3319129	·7691204	3·26
90	71536	·8545222	·2429884	·7554024	3·09
91	54038	·7327005	·1455693	·7412570	2·93
92	40056	·6026693	·0392951	·7267008	2·78
93	29109	·4640250	3·9238137	·7117520	2·64
94	20718	·3163537	·7985816	·6964300	2·51
95	14429	·1592312	·6633239	·6807566	2·38
96	9823	3·9922231	·5175917	·6647552	2·26
97	6530	·8148848	·3609719	·6484503	2·15
98	4234	·6267615	·1928461	·6318683	2·05
99	2675	·4273881	·0128372	·6150364	1·95
100	1645	·2162893	2·8202015	·5979848	1·86
101	984	2·9929795	·6159501	·5807424	
102	571	·7569630	·3961993	·5633401	
103	322	·5077337	·1643529	·5458103	
104	176	·2447754	1·9190781	·5281851	
105	93	1·9675616	·6627578	·5104980	
106	47	·6755556	·3802112	·4927819	
107	23	·3682104	·0791812	·4750707	
108	11	·0449688	0·7781513	·4573983	
109	5	0·7052634	·4771213	·4397979	
110	2	·3485166	·0000000	·4223027	
111	1				

Based on Dr. Farr's English Life Tables.—No. 2, Females.

3 per Cent.

Age. x	Value of Life Annuity. a_x	Logarithm of Life Annuity. log. a_x	Life Annuity equivalent to £1. $\frac{1}{a_x}$	Single Premium for, or Present Value of, £1 at Death. ${}_xA$	Annual Premium for £1 at Death. ${}_x\Pi$	Present Value of Reversion to Perpetuity after Death. ${}_xa$
0	18·89435	1·2763320	·052926	·42055	·02114	14·43898
1	21·41058	·3306286	·046706	·34726	·01550	11·92275
2	22·47473	·3516944	·044494	·31627	·01347	10·85860
3	23·03173	·3623265	·043418	·30005	·01249	10·30160
4	23·34954	·3682783	·042827	·29079	·01194	9·98379
5	23·51822	·3714045	·042520	·28588	·01166	9·81511
6	23·56970	·3723542	·042427	·28438	·01157	9·76363
7	23·53159	·3716512	·042496	·28549	·01164	9·80174
8	23·44394	·3700306	·042655	·28804	·01178	9·88939
9	23·31785	·3676885	·042886	·29171	·01200	10·01548
10	23·17835	·3650826	·043144	·29578	·01223	10·15498
11	22·99626	·3616573	·043485	·30108	·01255	10·33707
12	22·80440	·3580187	·043851	·30667	·01288	10·52893
13	22·60533	·3542108	·044237	·31247	·01324	10·72800
14	22·40440	·3503335	·044634	·31832	·01360	10·92893
15	22·21449	·3466363	·045016	·32385	·01395	11·11884
16	22·01495	·3427176	·045424	·32966	·01432	11·31838
17	21·84564	·3393647	·045776	·33459	·01465	11·48769
18	21·68138	·3360869	·046123	·33938	·01496	11·65195
19	21·51397	·3327205	·046481	·34425	·01529	11·81936
20	21·34332	·3292621	·046853	·34922	·01563	11·99001
21	21·16940	·3257086	·047238	·35429	·01598	12·16393
22	20·99210	·3220560	·047637	·35945	·01634	12·34123
23	20·81136	·3183004	·048051	·36472	·01672	12·52197
24	20·62707	·3144376	·048480	·37009	·01711	12·70626
25	20·43919	·3104636	·048926	·37556	·01752	12·89414
26	20·24758	·3063731	·049389	·38114	·01794	13·08575
27	20·05216	·3021612	·049870	·38683	·01837	13·28117
28	19·85283	·2978225	·050371	·39264	·01883	13·48050
29	19·64947	·2933508	·050892	·39856	·01930	13·68386
30	19·44195	·2887399	·051435	·40460	·01979	13·89138
31	19·23016	·2839830	·052001	·41077	·02030	14·10317
32	19·01394	·2790721	·052593	·41707	·02084	14·31939
33	18·79315	·2739996	·053211	·42350	·02140	14·59018
34	18·56763	·2687563	·053857	·43007	·02198	14·76570
35	18·33719	·2633328	·054534	·43678	·02259	14·99614
36	18·10167	·2577187	·055244	·44364	·02323	15·23166
37	17·86087	·2519025	·055988	·45065	·02389	15·47246
38	17·61454	·2458714	·056771	·45783	·02460	15·71879
39	17·36249	·2396120	·057595	·46517	·02533	15·97084
40	17·10446	·2331093	·058464	·47269	·02611	16·22887
41	16·84019	·2263470	·059382	·48038	·02693	16·49314
42	16·56937	·2193060	·060352	·48827	·02779	16·76396
43	16·29174	·2119671	·061381	·49636	·02870	17·04159
44	16·00690	·2043071	·062473	·50465	·02967	17·32643
45	15·71454	·1963017	·063635	·51317	·03070	17·61879
46	15·41428	·1879233	·064875	·52191	·03180	17·91905
47	15·10570	·1791409	·066200	·53090	·03296	18·22763
48	14·78835	·1699197	·067621	·54015	·03421	18·54498
49	14·46175	·1602207	·069148	·54966	·03555	18·87158
50	14·12538	·1500001	·070795	·55945	·03699	19·20795

Based on Dr. Farr's English Life Table.—No. 2, Females.

3 per Cent.

x	a_x	log. a_x	$\frac{1}{a_x}$	${}_xA$	${}_x\Pi$	${}_xa$
51	13·78457	1·1393933	·072545	·56938	·03851	19·54876
52	13·44259	·1284829	·074390	·57934	·04011	19·89074
53	13·09875	·1172298	·076343	·58936	·04180	20·23458
54	12·75250	·1055952	·078416	·59944	·04359	20·58083
55	12·40343	·0935417	·080623	·60961	·04548	20·92990
56	12·05137	·0810363	·082978	·61986	·04749	21·28196
57	11·69637	·0680511	·085497	·63020	·04964	21·63696
58	11·33868	·0545627	·088194	·64062	·05192	21·99465
59	10·97872	·0405518	·091085	·65111	·05436	22·35461
60	10·61704	·0260036	·094188	·66164	·05695	22·71629
61	10·25433	·0109073	·097520	·67220	·05973	23·07900
62	9·89136	0·9952559	·101098	·68278	·06269	23·44197
63	9·52896	·9790457	·104943	·69333	·06585	23·80437
64	9·16805	·9622770	·109074	·70384	·06922	24·16528
65	8·80952	·9449525	·113514	·71429	·07282	24·52381
66	8·45432	·9270785	·118283	·72463	·07665	24·87901
67	8·10333	·9086635	·123406	·73485	·08072	25·23000
68	7·75744	·8897182	·128908	·74493	·08506	25·57589
69	7·41747	·8702560	·134817	·75483	·08967	25·91586
70	7·08422	·8502918	·141159	·76454	·09457	26·24911
71	6·75837	·8298418	·147965	·77403	·09977	26·57496
72	6·44056	·8089234	·155266	·78329	·10527	26·89277
73	6·13134	·7875557	·163096	·79229	·11110	27·20199
74	5·83121	·7657587	·171491	·80103	·11726	27·50212
75	5·54054	·7435519	·180488	·80950	·12377	27·79279
76	5·25964	·7209561	·190127	·81768	·13063	28·07369
77	4·98874	·6979913	·200451	·82557	·13785	28·34459
78	4·72802	·6746791	·211405	·83316	·14545	28·60531
79	4·47754	·6510391	·223337	·84046	·15344	28·85579
80	4·23731	·6270902	·235999	·84746	·16181	29·09602
81	4·00729	·6028517	·249545	·85416	·17058	29·32604
82	3·78743	·5783441	·264032	·86056	·17975	29·54590
83	3·57751	·5535813	·279524	·86667	·18933	29·75582
84	3·37740	·5285827	·296086	·87250	·19932	29·95593
85	3·18686	·5033636	·313788	·87805	·20972	30·14647
86	3·00564	·4779366	·332708	·88333	·22052	30·32769
87	2·83344	·4523137	·352928	·88834	·23173	30·49989
88	2·67000	·4265106	·374532	·89310	·24335	30·66333
89	2·51497	·4005335	·397619	·89762	·25537	30·81836
90	2·36810	·3743997	·422280	·90189	·26778	30·96523
91	2·22885	·3480809	·448662	·90594	·28057	31·10448
92	2·09715	·3216299	·476837	·90977	·29375	31·23616
93	1·97231	·2949761	·507019	·91340	·30729	31·36102
94	1·85438	·2681978	·539265	·91681	·32121	31·47895
95	1·74297	·2412907	·573732	·92008	·33548	31·59036
96	1·63758	·2142014	·610659	·92318	·35007	31·69575
97	1·53803	·1869621	·650186	·92610	·36499	31·79530
98	1·44184	·1589164	·693559	·92877	·38018	31·89149
99	1·35300	·1312988	·739097	·93127	·39623	31·98033
100	1·26141	·1008570	·792762	·93368	·41206	32·07192

Single Life Annuities, *founded on the* English Table. No. 2, Females.

Age.	4. per Cent.	5.	6.
0	15·5844	13·1848	11·3884
1	17·6641	14·9422	12·9012
2	18·5551	15·7008	13·5570
3	19·0332	16·1145	13·9184
4	19·3176	16·3674	14·1434
5	19·4814	16·5203	14·2838
6	19·5500	16·5941	14·3571
7	19·5454	16·6066	14·3782
8	19·5003	16·5854	14·3707
9	19·4236	16·7377	14·3406
10	19·3359	16·4810	14·3029
11	19·2126	16·3939	14·2389
12	19·0808	16·2995	14·1686
13	18·9427	16·1996	14·0934
14	18·8028	16·0979	14·0166
15	18·6718	16·0039	13·9464
16	18·5324	15·9025	13·8698
17	18·4184	15·8230	13·8124
18	18·3087	15·7473	13·7585
19	18·1963	15·6695	13·7029
20	18·0813	15·5896	13·6457
21	17·9634	15·5074	13·5871
22	17·8427	15·4229	13·5258
23	17·7190	15·3359	13·4630
24	17·5923	15·2465	13·3981
25	17·4625	15·1545	13·3313
26	17·3294	15·0597	13·2622
27	17·1929	14·9622	13·1908
28	17·0530	14·8618	13·1170
29	16·9095	14·7583	13·0408
30	16·7623	14·6516	12·9619
31	16·6112	14·5417	12·8802
32	16·4561	14·4282	12·7956
33	16·2968	14·3111	12·7079
34	16·1331	14·1903	12·6170
35	15·9649	14·0654	12·5227
36	15·7919	13·9362	12·4247
37	15·6140	13·8027	12·3228
38	15·4309	13·6644	12·2169
39	15·2423	13·5213	12·1066
40	15·0479	13·3728	11·9916
41	14·8476	13·2189	11·8717
42	14·6409	13·0591	11·7465
43	14·4275	12·8930	11·6157
44	14·2071	12·7203	11·4788
45	13·9792	12·5406	11·3353
46	13·7434	12·3534	11·1850
47	13·4993	12·1581	11·0270
48	13·2463	11·9543	10·8611
49	12·9839	11·7413	10·6864
50	12·7116	11·5186	10·5023

SINGLE LIFE ANNUITIES, *founded on the* ENGLISH TABLE.
No. 2, FEMALES.

Age.	4 per Cent.	5.	6.
51	12·4340	11·2902	10·3126
52	12·1540	11·0589	10·1195
53	11·8711	10·8239	9·9226
54	11·5845	10·5848	9·7213
55	11·2941	10·3411	9·5151
56	10·9994	10·0926	9·3038
57	10·7006	9·8392	9·0872
58	10·3979	9·5811	8·8655
59	10·0914	9·3184	8·6387
60	9·7818	9·0517	8·4072
61	9·4697	8·7813	8·1714
62	9·1556	8·5079	7·9318
63	8·8404	8·2322	7·6890
64	8·5249	7·9549	7·4437
65	8·2099	7·6767	7·1965
66	7·8964	7·3986	6·9528
67	7·5851	7·1213	6·7045
68	7·2770	6·8455	6·4568
69	6·9728	6·5722	6·2102
70	6·6733	6·3020	5·9656
71	6·3793	6·0358	5·7236
72	6·0914	5·7741	5·4848
73	5·8103	5·5175	5·2500
74	5·5363	5·2667	5·0196
75	5·2701	5·0220	4·7942
76	5·0119	4·7840	4·5742
77	4·7620	4·5529	4·3600
78	4·5208	4·3291	4·1520
79	4·2883	4·1128	3·9503
80	4·0647	3·9041	3·7551
81	3·8500	3·7031	3·5668
82	3·6441	3·5099	3·3852
83	3·4471	3·3245	3·2106
84	3·2588	3·1469	3·0429
85	3·0789	2·9768	2·8821
86	2·9076	2·8144	2·7280
87	2·7444	2·6593	2·5807
88	2·5892	2·5110	2·4400
89	2·4419	2·3702	2·3058
90	2·3020	2·2355	2·1778
91	1·1690	2·1075	2·0560
92	2·0430	1·9864	1·9401
93	1·9244	1·8702	1·8299
94	1·8128	1·7613	1·7252
95	1·7072	1·6564	1·6258
96	1·6063	1·5553	1·5315
97	1·5098	1·4530	1·4422
98	1·4262	1·3663	1·3574
99	1·3415	1·2938	1·2772
100	1·2713	1·2377	1·2012

Single Life Annuities (English).—No. 2, Females.

To pay a high Rate of Interest and replace Capital by Investment of Surplus at 3 per Cent.

Age.	Annual Rate of Interest.				
	4 per Cent.	5.	6.	8.	10.
0	15·892	13·713	12·058	9·716	8·135
1	17·635	14·991	13·088	10·341	8·569
2	18·350	15·505	13·424	10·583	8·734
3	18·720	15·768	13·621	10·705	8·817
4	18·930	15·916	13·731	10·773	8·863
5	19·040	15·995	13·789	10·808	8·887
6	19·074	16·018	13·807	10·819	8·895
7	19·049	16·001	13·794	10·811	8·889
8	18·991	15·960	13·764	10·793	8·877
9	18·909	15·902	13·720	10·766	8·859
10	18·817	15·837	13·672	10·736	8·838
11	18·697	15·752	13·608	10·697	8·812
12	18·570	15·661	13·541	10·655	8·783
13	18·437	15·567	13·470	10·612	8·754
14	18·304	15·472	13·399	10·567	8·723
15	18·177	15·381	13·331	10·525	8·694
16	18·043	15·285	13·258	10·480	8·664
17	17·929	15·203	13·197	10·441	8·637
18	17·818	15·123	13·137	10·403	8·612
19	17·705	15·042	13·075	10·365	8·585
20	17·589	14·958	13·012	10·325	8·558
21	17·471	14·873	12·947	10·284	8·530
22	17·350	14·785	12·880	10·242	8·501
23	17·226	14·695	12·812	10·199	8·471
24	17·100	14·603	12·742	10·154	8·440
25	16·971	14·508	12·670	10·109	8·409
26	16·838	14·412	12·596	10·062	8·376
27	16·703	14·312	12·520	10·013	8·342
28	16·564	14·210	12·442	9·963	8·301
29	16·423	14·106	12·362	9·912	8·272
30	16·277	13·999	12·280	9·858	8·235
31	16·129	13·889	12·195	9·802	8·197
32	15·976	13·775	12·108	9·747	8·157
33	15·820	13·659	12·018	9·689	8·116
34	15·660	13·540	11·925	9·629	8·074
35	15·496	13·417	11·830	9·566	8·030
36	15·327	13·290	11·731	9·502	7·984
37	15·154	13·160	11·629	9·435	7·937
38	14·977	13·026	11·525	9·366	7·888
39	14·794	12·887	11·416	9·294	7·837
40	14·606	12·745	11·304	9·220	7·784
41	14·413	12·597	11·188	9·142	7·729
42	14·214	12·445	11·068	9·062	7·672
43	14·009	12·288	10·943	8·978	7·611
44	13·798	12·125	10·814	8·891	7·549
45	13·580	11·957	10·680	8·800	7·483
46	13·356	11·782	10·540	8·705	7·414
47	13·123	11·601	10·395	8·606	7·342
48	12·883	11·413	10·244	8·502	7·266
49	12·635	11·217	10·086	8·393	7·187
50	12·377	11·014	9·921	8·279	7·103

Single Life Annuities (English).—No. 2, Females.

To pay a high Rate of Interest and replace Capital by Investment of Surplus at 3 per Cent.

Age.	Annual Rate of Interest.				
	4 per Cent.	5.	6.	8.	10.
51	12·115	10·806	9·752	8·160	7·015
52	11·850	10·594	9·579	8·039	6·926
53	11·582	10·380	9·404	7·915	6·833
54	11·310	10·161	9·224	7·787	6·738
55	11·035	9·938	9·040	7·656	6·639
56	10·755	9·711	8·851	7·520	6·537
57	10·472	9·479	8·658	7·380	6·431
58	10·184	9·243	8·461	7·236	6·321
59	9·893	9·002	8·259	7·088	6·208
60	9·598	8·757	8·052	6·935	6·091
61	9·301	8·509	7·842	6·779	5·969
62	9·001	8·258	7·628	6·618	5·845
63	8·700	8·004	7·411	6·454	5·716
64	8·398	7·747	7·190	6·286	5·584
65	8·096	7·490	6·968	6·116	5·449
66	7·795	7·232	6·744	5·942	5·311
67	7·496	6·973	6·519	5·767	5·170
68	7·199	6·716	6·293	5·589	5·027
69	6·905	6·459	6·067	5·411	4·882
70	6·616	6·205	5·843	5·231	4·726
71	6·331	5·954	5·619	5·051	4·588
72	6·051	5·706	5·398	4·872	4·439
73	5·777	5·462	5·179	4·693	4·290
74	5·510	5·222	4·963	4·515	4·141
75	5·250	4·988	4·751	4·339	3·992
76	4·997	4·759	4·543	4·165	3·844
77	4·752	4·536	4·339	3·993	3·698
78	4·515	4·320	4·141	3·824	3·552
79	4·286	4·110	3·947	3·658	3·409
80	4·065	3·906	3·759	3·497	3·268
81	3·853	3·710	3·577	3·338	3·129
82	3·649	3·521	3·401	3·184	2·994
83	3·454	3·339	3·231	3·035	2·861
84	3·267	3·164	3·067	2·889	2·732
85	3·089	2·996	2·909	2·748	2·606
86	2·918	2·835	2·757	2·613	2·483
87	2·755	2·681	2·611	2·482	2·364
88	2·601	2·535	2·472	2·356	2·250
89	2·453	2·395	2·339	2·234	2·138
90	2·313	2·261	2·211	2·117	2·031
91	2·180	2·134	2·089	2·005	1·928
92	2·054	2·013	1·973	1·898	1·829
93	1·934	1·897	1·862	1·795	1·733
94	1·821	1·788	1·757	1·697	1·641
95	1·713	1·684	1·656	1·603	1·553
96	1·611	1·586	1·561	1·514	1·469
97	1·515	1·492	1·470	1·428	1·389
98	1·421	1·401	1·382	1·345	1·310
99	1·335	1·317	1·300	1·267	1·236
100	1·246	1·230	1·215	1·187	1·159
101					

Values of Annuities on the Basis of Dr. Farr's English Healthy Life Tables, April, 1859.

Capital to be replaced by Investment at 3 *per Cent. per Annum, and Interest to be received at* 3, 4, 5, 6, 8, 10, *or* 12 *per Cent.*

Ages.	Males in Healthy Districts.						
	3.	4.	5.	6.	8.	10.	12.
0	21·158	17·464	14·867	12·943	10·281	8·528	7·285
1	23·564	19·070	16·016	13·805	10·818	8·894	7·551
2	24·153	19·454	16·286	14·005	10·941	8·976	7·610
3	24·431	19·634	16·412	14·098	10·997	9·015	7·638
4	24·559	19·717	16·469	14·141	11·023	9·032	7·650
5	24·619	19·755	16·496	14·160	11·035	9·040	7·656
6	24·620	19·756	16·497	14·161	11·035	9·040	7·656
7	24·571	19·724	16·475	14·144	11·025	9·034	7·651
8	24·479	19·665	16·433	14·114	11·007	9·021	7·642
9	24·353	19·584	16·377	14·072	10·981	9·004	7·630
10	24·199	19·484	16·307	14·021	10·950	8·983	7·615
11	24·026	19·372	16·228	13·962	10·914	8·959	7·598
12	23·838	19·249	16·142	13·898	10·875	8·933	7·579
13	23·640	19·120	16·051	13·831	10·834	8·905	7·559
14	23·438	18·988	15·958	13·762	10·792	8·876	7·538
15	23·235	18·854	15·864	13·692	10·748	8·847	7·517
16	23·035	18·726	15·770	13·622	10·705	8·817	7·496
17	22·839	18·592	15·678	13·553	10·663	8·788	7·475
18	22·649	18·466	15·588	13·486	10·621	8·760	7·454
19	22·465	18·344	15·501	13·421	10·580	8·733	7·434
20	22·288	18·226	15·416	13·357	10·541	8·706	7·415
21	22·117	18·112	15·334	13·296	10·503	8·680	7·396
22	21·945	17·996	15·251	13·233	10·464	8·653	7·376
23	21·770	17·878	15·167	13·169	10·424	8·626	7·356
24	21·592	17·758	15·080	13·104	10·383	8·597	7·336
25	21·411	17·635	14·991	13·037	10·341	8·569	7·315
26	21·225	17·509	14·900	12·968	10·297	8·539	7·293
27	21·034	17·379	14·806	12·896	10·252	8·508	7·271
28	20·839	17·245	14·709	12·823	10·205	8·475	7·247
29	20·638	17·108	14·608	12·746	10·157	8·442	7·223
30	20·431	16·965	14·505	12·667	10·107	8·407	7·197
31	20·218	16·818	14·396	12·585	10·054	8·371	7·170
32	19·998	16·665	14·285	12·499	9·999	8·333	7·143
33	19·772	16·508	14·169	12·410	9·943	8·293	7·113
34	19·538	16·345	14·048	12·318	9·883	8·252	7·083
35	19·298	16·176	13·924	12·222	9·821	8·209	7·051
36	19·050	16·001	13·794	12·122	9·757	8·164	7·018
37	18·794	15·821	13·660	12·018	9·689	8·116	6·983
38	18·532	15·634	13·521	11·910	9·619	8·067	6·946
39	18·262	15·442	13·376	11·798	9·546	8·015	6·908
40	17·984	15·243	13·227	11·682	9·469	7·961	6·868
41	17·699	15·038	13·072	11·561	9·390	7·905	6·826
42	17·407	14·826	12·912	11·435	9·307	7·846	6·782
43	17·107	14·608	12·746	11·305	9·220	7·785	6·736
44	16·800	14·384	12·575	11·170	9·130	7·721	6·688
45	16·486	14·153	12·398	11·031	9·037	7·654	6·638
46	16·165	13·916	12·216	10·886	8·940	7·584	6·585
47	15·837	13·672	12·028	10·736	8·838	7·511	6·530
48	15·503	13·422	11·834	10·581	8·733	7·435	6·472
49	15·161	13·165	11·634	10·421	8·624	7·355	6·412

Values of Annuities on the Basis of Dr. Farr's English Healthy Life Table, April, 1859.

Capital to be replaced by Investment at 3 *per Cent. per Annum, and Interest to be received at* 3, 4, 5, 6, 8, 10, *or* 12 *per Cent.*

Age.	Males in Healthy Districts.						
	3.	4.	5.	6.	8.	10.	12.
50	14·814	12·902	11·428	10·256	8·510	7·272	6·349
51	14·460	12·633	11·216	10·085	8·392	7·186	6·283
52	14·099	12·357	10·998	9·908	8·269	7·096	6·214
53	13·732	12·074	10·773	9·726	8·142	7·002	6·142
54	13·359	11·785	10·542	9·537	8·009	6·903	6·066
55	12·980	11·489	10·305	9·342	7·871	6·801	5·986
56	12·594	11·185	10·060	9·141	7·728	6·693	5·903
57	12·202	10·875	9·808	8·932	7·578	6·581	5·815
58	11·803	10·557	9·549	8·717	7·423	6·463	5·723
59	11·397	10·231	9·282	8·493	7·260	6·340	5·626
60	10·996	9·906	9·013	8·268	7·095	6·213	5·527
61	10·600	9·584	8·746	8·043	6·928	6·085	5·425
62	10·210	9·264	8·479	7·816	6·760	5·955	5·321
63	9·825	8·946	8·212	7·588	6·589	5·821	5·214
64	9·445	8·630	7·944	7·360	6·415	5·686	5·105
65	9·069	8·315	7·677	7·130	6·240	5·547	4·993
66	8·698	8·002	7·409	6·898	6·062	5·406	4·879
67	8·333	7·692	7·142	6·666	5·882	5·263	4·762
68	7·972	7·384	6·876	6·434	5·700	5·117	4·642
69	7·618	7·079	6·611	6·201	5·517	4·968	4·519
70	7·270	6·778	6·347	5·969	5·332	4·818	4·395
71	6·930	6·481	6·086	5·737	5·146	4·666	4·268
72	6·597	6·188	5·828	5·507	4·961	4·513	4·139
73	6·272	5·902	5·573	5·279	4·775	4·358	4·009
74	5·956	5·621	5·322	5·053	4·589	4·203	3·877
75	5·649	5·347	5·076	4·831	4·405	4·048	3·745
76	5·352	5·080	4·835	4·612	4·222	3·893	3·612
77	5·065	4·821	4·599	4·397	4·041	3·739	3·479
78	4·788	4·569	4·370	4·187	3·863	3·586	3·346
79	4·522	4·326	4·147	3·982	3·688	3·435	3·214
80	4·266	4·092	3·931	3·782	3·516	3·285	3·083
81	4·021	3·866	3·722	3·588	3·348	3·138	2·953
82	3·787	3·649	3·520	3·401	3·184	2·993	2·824
83	3·563	3·441	3·326	3·219	3·024	2·852	2·698
84	3·350	3·242	3·140	3·044	2·870	2·714	2·574
85	3·148	3·051	2·961	2·876	2·720	2·579	2·453
86	2·955	2·870	2·790	2·714	2·575	2·449	2·334
87	2·772	2·698	2·627	2·559	2·435	2·322	2·219
88	2·599	2·534	2·471	2·411	2·300	2·199	2·107
89	2·436	2·378	2·323	2·270	2·171	2·081	1·998
90	2·281	2·230	2·181	2·135	2·047	1·967	1·892
91	2·135	2·090	2·048	2·006	1·929	1·857	1·791
92	1·997	1·958	1·920	1·884	1·816	1·752	1·693
93	1·867	1·833	1·800	1·768	1·708	1·651	1·599
94	1·745	1·715	1·686	1·658	1·605	1·555	1·508
95	1·630	1·604	1·579	1·554	1·507	1·463	1·421
96	1·522	1·499	1·477	1·455	1·414	1·375	1·338
97	1·420	1·400	1·381	1·362	1·326	1·292	1·259
98	1·324	1·307	1·290	1·274	1·242	1·212	1·183
99	1·234	1·219	1·205	1·190	1·163	1·136	1·111
100	1·150	1·137	1·124	1·112	1·087	1·064	1·042

Values of Annuities on the Basis of Dr. Farr's English Healthy Life Table, April, 1859.

Capital to be replaced by Investment at 3 per Cent. per Annum, and Interest to be received at 3, 4, 5, 6, 8, 10, or 12 per Cent.

Age.	Females in Healthy Districts.						
	3.	4.	5.	6.	8.	10.	12.
0	21·521	17·710	15·045	13·078	10·366	8·586	7·328
1	23·430	18·983	15·954	13·759	10·790	8·875	7·537
2	23·928	19·308	16·183	13·929	10·894	8·945	7·588
3	24·193	19·480	16·304	14·018	10·949	8·982	7·614
4	24·306	19·554	16·356	14·057	10·972	8·998	7·625
5	24·354	19·584	16·377	14·072	10·982	9·004	7·630
6	24·345	19·579	16·373	14·069	10·980	9·003	7·629
7	24·289	19·542	16·348	14·051	10·968	8·995	7·624
8	24·194	19·481	16·304	14·019	10·949	8·982	7·614
9	24·068	19·399	16·247	13·976	10·923	8·965	7·602
10	23·919	19·302	16·179	13·926	10·892	8·944	7·587
11	23·754	19·195	16·104	13·870	10·858	8·921	7·570
12	23·578	19·079	16·022	13·810	10·821	8·896	7·552
13	23·396	18·960	15·938	13·747	10·783	8·870	7·533
14	23·213	18·840	15·853	13·684	10·744	8·843	7·514
15	23·031	18·720	15·768	13·620	10·704	8·817	7·495
16	22·853	18·602	15·684	13·558	10·666	8·791	7·476
17	22·680	18·487	15·603	13·497	10·628	8·765	7·458
18	22·512	18·375	15·523	13·437	10·591	8·740	7·439
19	22·350	18·267	15·446	13·379	10·555	8·715	7·422
20	22·191	18·158	15·370	13·322	10·519	8·691	7·404
21	22·033	18·056	15·294	13·265	10·484	8·667	7·386
22	21·874	17·948	15·217	13·207	10·448	8·642	7·368
23	21·712	17·839	15·140	13·148	10·410	8·616	7·350
24	21·547	17·728	15·058	13·087	10·372	8·590	7·331
25	21·379	17·614	14·976	13·025	10·333	8·564	7·311
26	21·208	17·497	14·892	12·961	10·293	8·536	7·291
27	21·032	17·377	14·806	12·895	10·252	8·507	7·270
28	20·852	17·254	14·715	12·828	10·209	8·478	7·249
29	20·667	17·127	14·623	12·758	10·164	8·447	7·226
30	20·477	16·997	14·528	12·685	10·118	8·415	7·203
31	20·282	16·862	14·429	12·610	10·070	8·382	7·179
32	20·081	16·723	14·327	12·532	10·020	8·347	7·153
33	19·874	16·579	14·221	12·451	9·968	8·311	7·127
34	19·661	16·431	14·112	12·367	9·915	8·274	7·099
35	19·442	16·277	13·999	12·280	9·858	8·235	7·070
36	19·216	16·118	13·881	12·189	9·800	8·194	7·040
37	18·982	15·954	13·759	12·095	9·739	8·151	7·009
38	18·742	15·784	13·632	11·997	9·675	8·107	6·976
39	18·495	15·608	13·501	11·895	9·609	8·060	6·941
40	18·240	15·426	13·364	11·789	9·540	8·011	6·905
41	17·977	15·238	13·223	11·679	9·467	7·960	6·867
42	17·707	15·043	13·076	11·564	9·392	7·907	6·827
43	17·428	14·842	12·924	11·444	9·313	7·851	6·785
44	17·141	14·633	12·765	11·320	9·230	7·792	6·741
45	16·846	14·418	12·601	11·191	9·144	7·730	6·695
46	16·543	14·195	12·430	11·056	9·054	7·666	6·647
47	16·231	13·965	12·253	10·916	8·960	7·598	6·596
48	15·910	13·726	12·069	10·769	8·861	7·527	6·542
49	15·580	13·480	11·878	10·617	8·758	7·452	6·486

Values of Annuities on the Basis of Dr. Farr's English Healthy Life Table, April, 1859.

Capital to be replaced by Investment at 3 *per Cent. per Annum, and Interest to be received at* 3, 4, 5, 6, 8, 10, *or* 2 *per Cent.*

Age.	Females in Healthy Districts.						
	3.	4.	5.	6.	8.	10.	12.
50	15·240	13·225	11·680	10·459	8·649	7·374	6·426
51	14·891	12·961	11·474	10·293	8·536	7·291	6·363
52	14·533	12·689	11·260	10·120	8·417	7·204	6·297
53	14·164	12·407	11·037	9·940	8·292	7·112	6·227
54	13·785	12·115	10·806	9·752	8·161	7·016	6·152
55	13·396	11·813	10·565	9·556	8·022	6·913	6·074
56	12·995	11·501	10·315	9·350	7·877	6·805	5·990
57	12·583	11·177	10·053	9·135	7·724	6·690	5·901
58	12·174	10·852	9·790	8·917	7·567	6·573	5·809
59	11·771	10·532	9·528	8·699	7·410	6·454	5·716
60	11·375	10·213	9·267	8·481	7·251	6·333	5·621
61	10·984	9·897	9·005	8·261	7·090	6·209	5·524
62	10·596	9·581	8·743	8·040	6·926	6·084	5·424
63	10·212	9·265	8·480	7·817	6·760	5·955	5·321
64	9·830	8·950	8·215	7·591	6·591	5·823	5·216
65	9·452	8·635	7·949	7·364	6·418	5·688	5·107
66	9·076	8·321	7·682	7·134	6·243	5·550	4·996
67	8·705	8·008	7·414	6·902	6·065	5·409	4·881
68	8·337	7·695	7·145	6·669	5·884	5·265	4·763
69	7·974	7·385	6·877	6·435	5·701	5·117	4·642
70	7·616	7·077	6·609	6·200	5·516	4·968	4·519
71	7·265	6·773	6·343	5·965	5·329	4·816	4·393
72	6·920	6·472	6·079	5·730	5·141	4·662	4·264
73	6·583	6·176	5·817	5·497	4·953	4·506	4·134
74	6·253	5·885	5·558	5·266	4·764	4·349	4·001
75	5·933	5·601	5·304	5·037	4·576	4·192	3·868
76	5·622	5·323	5·054	4·811	4·388	4·034	3·733
77	5·321	5·052	4·809	4·588	4·203	3·877	3·598
78	5·030	4·789	4·570	4·371	4·019	3·720	3·463
79	4·750	4·534	4·338	4·157	3·838	3·565	3·327
80	4·480	4·288	4·112	3·950	3·660	3·411	3·193
81	4·222	4·051	3·893	3·747	3·486	3·259	3·059
82	3·975	3·823	3·682	3·551	3·316	3·110	2·928
83	3·739	3·604	3·478	3·361	3·150	2·963	2·797
84	3·513	3·394	3·283	3·178	2·988	2·820	2·669
85	3·299	3·194	3·095	3·002	2·832	2·680	2·544
86	3·095	3·002	2·915	2·832	2·680	2·544	2·421
87	2·902	2·820	2·743	2·670	2·534	2·412	2·301
88	2·719	2·647	2·579	2·514	2·394	2·284	2·185
89	2·546	2·483	2·423	2·365	2·259	2·161	2·071
90	2·383	2·327	2·274	2·229	2·129	2·042	1·962
91	2·228	2·180	2·133	2·089	2·005	1·928	1·856
92	2·083	2·040	2·000	1·960	1·886	1·818	1·754
93	1·946	1·909	1·873	1·839	1·773	1·713	1·656
94	1·817	1·785	1·753	1·723	1·656	1·612	1·562
95	1·696	1·667	1·640	1·614	1·563	1·516	1·471
96	1·582	1·557	1·533	1·510	1·466	1·424	1·385
97	1·475	1·453	1·432	1·412	1·373	1·337	1·302
98	1·374	1·355	1·337	1·320	1·286	1·254	1·223
99	1·280	1·263	1·248	1·232	1·203	1·174	1·147
100	1·191	1·177	1·163	1·150	1·124	1·099	1·076

Values of Annuities on 2 Joint Lives.

Carlisle, 3 per Cent.

Ages.			Ages.			Ages.			Ages.		
0	0	10·4801.	9	5	19·9700	13	12	19·4318.	17	3	18·1635.
1	0	12·1436		6	20·1455		13	19·3273		4	18·6904.
	1	14·0785		7	20·2108	14	0	14·0646		5	19·0683.
2	0	13·0020.		8	20·2033		1	16·3143.		6	19·2453.
	1	15·0791		9	20·1467.		2	17·4940.		7	19·3178
	2	16·1550.	10	0	14·4108		3	18·4922.		8	19·3213.
3	0	13·7300		1	16·7215		4	19·0259		9	19·2782
	1	15·9268		2	17·9238.		5	19·4074.		10	19·2011.
	2	17·0659		3	18·9437		6	19·5839		11	19·1068
	3	18·0302		4	19·4868		7	19·6539.		12	19·0132.
4	0	14·1131		5	19·8731.		8	19·6534.		13	18·9172.
	1	16·3735.		6	20·0489		9	19·6053		14	18·8185
	2	17·5450.		7	20·1152		10	19·5225		15	18·7203
	3	18·5396		8	20·1092.		11	19·4222		16	18·6289.
	4	19·0649		9	20·0542		12	19·3224		17	18·5414.
5	0	14·3837.		10	19·9636		13	19·2201	18	0	13·7315
	1	16·6887.	11	0	14·3253.		14	19·1151.		1	15·9322.
	2	17·8857.		1	16·6222.	15	0	13·9762		2	17·0799
	3	18·8992		2	17·8176		1	16·2167		3	18·0570.
	4	19·4360.		3	18·8322		2	17·3842		4	18·5816
	5	19·8154		4	19·3734.		3	18·3768		5	18·9583
6	0	14·5025.		5	19·7582.		4	18·9081		6	19·1355
	1	16·8273		6	19·9342		5	19·2883		7	19·2089.
	2	18·0352		7	20·0015.		6	19·4650.		8	19·2137
	3	19·0583		8	19·9968		7	19·5358.		9	19·1722.
	4	19·6007		9	19·9436		8	19·5366.		10	19·0969
	5	19·9846		10	19·8550.		9	19·4902		11	19·0046
	6	20·1565.		11	19·7484		10	19·4094.		12	18·9130
7	0	14·5425.	12	0	14·2402		11	19·3111		13	18·8190
	1	16·8741.		1	16·5234.		12	19·2134		14	18·7225
	2	18·0861		2	17·7120		13	19·1132		15	18·6265
	3	19·1130.		3	18·7213		14	19·0104.		16	18·5374.
	4	19·6580		4	19·2599.		15	18·9079.		17	18·4518
	5	20·0442		5	19·6438	16	0	13·8930.		18	18·3645.
	6	20·2178		6	19·8201		1	16·1200.	19	0	13·6466.
	7	20·2807		7	19·8883.		2	16·8874		1	15·8333.
8	0	14·5305.		8	19·8851.		3	18·2680		2	16·9740
	1	16·8604.		9	19·8335		4	18·7972		3	17·9456.
	2	18·0719.		10	19·7469.		5	19·1762		4	18·4678.
	3	19·0988.		11	19·6424.		6	19·3530		5	18·8432
	4	19·6444		12	19·5384.		7	19·4247.		6	19·0204
	5	20·0315	13	0	14·1534.		8	19·4268		7	19·0946
	6	20·2063.		1	16·4225.		9	19·3821		8	19·1007.
	7	20·2704		2	17·6042.		10	19·3031		9	19·0608
	8	20·2615		3	18·6080.		11	19·2069		10	18·9874
9	0	14·4835.		4	19·1442.		12	19·1113.		11	18·8971.
	1	16·8058		5	19·5269		13	19·0132.		12	18·8075.
	2	18·0138		6	19·7034.		14	18·9125.		13	18·7156.
	3	19·0382.		7	19·7724		15	18·8121		14	18·6212.
	4	19·5830		8	19·7706.		16	18·7185		15	18·5273
				9	19·7208	17	0	13·8129.		16	18·4401
				10	19·6361.		1	16·0268		17	18·3570.
				11	19·5337.		2	17·1812		18	18·2719.
										19	18·1816.

Annuities on 2 Joint Lives (Carlisle), 3 per Cent.

Ages.			Ages.			Ages.			Ages.		
20	0	13·5579.	22	11	18·5366	24	18	17·7108	26	21	17·2036
	1	15·7296		12	18·4531		19	17·6324		22	17·1113
	2	16·8633		13	18·3670		20	17·5489		23	17·0128
	3	17·8290		14	18 2795		21	17·4599		24	16·9080
	4	18·3482.		15	18·1922		22	17·3622		25	16·7963
	5	18·7226		16	18·1116		23	17·2581		26	16·6803
	6	18·8998		17	18·0351.		24	17·1475.	27	0	12·8064
	7	18·9747		18	17·9563	25	0	13·0423		1	14·8535
	8	18·9821.		19	17·8735		1	15·1287		2	15·9226.
	9	18·9438		20	17·7851		2	16·2181		3	16·8366
	10	18·8723.		21	17·6910		3	17·1486		4	17·3314
	11	18·7839		22	17·5879.		4	17·6516		5	17·6905
	12	18·6959	23	0	13·2629		5	18·0157.		6	17·8647
	13	18·6065		1	15·3861		6	18·1913		7	17·9432.
	14	18·5143.		2	16·4944		7	18·2690		8	17·9582
	15	18·4226.		3	17·4402		8	18·2822		9	17·9308
	16	18·3376.		4	17·9505		9	18·2517		10	17·8721
	17	18·2566		5	18·3191		10	18·1895.		11	17·7978
	18	18·1729.		6	18·4957		11	18·1116		12	17·7246
	19	18·0858		7	18·5725		12	18·0339		13	17·6495
	20	17·9924.		8	18·5834		13	17·9546		14	17·5724
21	0	13·4653		9	18·5500		14	17·8732		15	17·4961
	1	15·6220		10	18·4840		15	17·7925		16	17·4265
	2	16·7476		11	18·4017		16	17·7185		17	17·3611
	3	17·7071		12	18·3203		17	17·6489		18	17·2943
	4	18·2239		13	18·2368.		18	17·5774		19	17·2230
	5	18·5963		14	18·1510		19	17·5013		20	17·1470
	6	18·7734		15	18·0659		20	17·4203.		21	17·0657
	7	18·8490		16	17·9875		21	17·3339		22	16·9761
	8	18·8576		17	17·9132		22	17·2389		23	16·8805
	9	18·8210		18	17 8372		23	17·1376		24	16·7785
	10	18·7513		19	17·7564		24	17·0299		25	16·6698
	11	18·6649		20	17·6704		25	16·9152.		26	16·5570
	12	18·5794		21	17·5788	26	0	12·9270		27	16·4367
	13	18·4917		22	17·4784		1	14·9940	28	0	12·6851
	14	18·4015		23	17·3716		2	16·0736		1	14·7120
	15	18·3120	24	0	13·1550		3	16·9960		2	15·7706
	16	18·2292		1	15·2602		4	17·4950		3	16·6762.
	17	18·1505		2	16·3593		5	17·8567		4	17·1668
	18	18·0699		3	17·2976		6	18·0317.		5	17·5231
	19	17·9843		4	17·8044.		7	18·1098		6	17·6967
	20	17·8933		5	18·1708		8	18·1240		7	17·7754
	21	17·7967.		6	18·3469		9	18·0933		8	17·7914
22	0	13·3663		7	18·4243		10	18·0345		9	17·7653
	1	15·5066		8	18·4363		11	17·9583		10	17·7084
	2	16·6238		9	18·4044		12	17·8830		11	17·6360
	3	17·5766		10	18·3403		13	17·8058		12	17·5648
	4	18·0903		11	18·2600		14	17·7266		13	17·4917
	5	18·4609		12	18·1807		15	17·6481		14	17·4167
	6	18·6378		13	18·0992		16	17·5763		15	17·3426
	7	18·7140		14	18·0157.		17	17·5087		16	17·2752
	8	18·7238		15	17·9327		18	17·4396		17	17·2120
	9	18·6887		16	17·8565		19	17·3660		18	17·1475.
	10	18·6209		17	17·7845		20	17·2874		19	17·0785

Annuities on 2 Joint Lives (Carlisle), 3 per Cent.

Ages.			Ages.			Ages.			Ages.		
28	20	17·0048	30	15	17·0637.	32	6	17·0840	33	27	15·7512
	21	16·9262		16	17·0004		7	17·1637		28	15·6480.
	22	16·8392		17	16·9414		8	17·1833		29	15·5519
	23	16·7464		18	16·8811		9	17·1616		30	15·4665
	24	16·6473		19	16·8166		10	17·1118		31	15·3780
	25	16·5416		20	16·7477.		11	17·0465		32	15·2837
	26	16·4318		21	16·6739		12	16·9825.		33	15·1789
	27	16·3148		22	16·5920		13	16·9185	34	0	11·9988
	28	16·1960.		23	16·5045		14	16·8497		1	13·9102
29	0	12·5700		24	16·4110		15	16·7836		2	14·9088
	1	14·5777		25	16·3110		16	16·7242		3	15·7655
	2	15·6265		26	16·2071		17	16·6692.		4	16·2318.
	3	16·5240		27	16·0962		18	16·6131		5	16·5726
	4	17·0106.		28	15·9836		19	16·5530		6	16·7030
	5	17·3644		29	15·8781		20	16·4886		7	16·8213
	6	17·5372		30	15·7834		21	16·4196		8	16·8423
	7	17·6162	31	0	12·3561		22	16·3428.		9	16·8238
	8	17·6329		1	14·3279		23	16·2605		10	16·7764
	9	17·6084.		2	15·3581		24	16·1724		11	16·7146
	10	17·5531		3	16·2404		25	16·0780		12	16·6540
	11	17·4827		4	16·7196		26	15·9800		13	16·5921
	12	17·4133		5	17·0688		27	15·8750		14	16·5287
	13	17·3422		6	17·2403		28	15·7686		15	16·4664
	14	17·2692		7	17·3198		29	15·6694		16	16·4108
	15	17·1956		8	17·3385		30	15·5809		17	16·3589
	16	17·1319		9	17·3163		31	15·4891		18	16·3078
	17	17·0708		10	17·2642		32	15·3910		19	16·2520
	18	17·0084		11	17·1972	33	0	12·1250		20	16·1922
	19	16·9418.		12	17·1315		1	14·0574		21	16·1279
	20	16·8705		13	17·0641		2	15·0675		22	16·0561
	21	16·7943		14	16·9950		3	15·9333		23	15·9791
	22	16·7100		15	16·9269		4	16·4042		24	15·8965
	23	16·6195		16	16·8656.		5	16·7095		25	15·8079
	24	16·5236.		17	16·8085		6	16·9179		26	15·7157
	25	16·4208		18	16·7504		7	16·9977		27	15·6169
	26	16·3140		19	16·6881		8	17·0180		28	15·5168
	27	16·2000		20	16·6215		9	16·9983		29	15·4239
	28	16·0844		21	16·5501.		10	16·9493		30	15·3417
	29	15·9759.		22	16·4707		11	16·8858		31	15·2565
30	0	12·4640		23	16·3858		12	16·8235		32	15·1651
	1	14·4207		24	16·2950		13	16·7598.		33	15·0643
	2	15·4935		25	16·1978		14	16·6945		34	14·9534.
	3	16·3835		26	16·0968		15	16·6302	35	0	11·8674.
	4	16·8665		27	15·9889		16	16·5728		1	13·7566
	5	17·2181.		28	15·8794		17	16·5197		2	14·7435
	6	17·3902		29	15·7770		18	16·4657		3	15·5907
	7	17·4695		30	15·6854		19	16·4078		4	16·0521
	8	17·4874		31	15·5905.		20	16·3457		5	16·3897.
	9	17·4639	32	0	12·2440		21	16 2791		6	16·5574
	10	17·4102		1	14·1968		22	16 2048		7	16·6372
	11	17·3415		2	15·2171		23	16·1251		8	16·6974
	12	17·2740		3	16·0915		24	16·0397		9	16·6416
	13	17·2047		4	16·5667		25	15·9482		10	16·5957.
	14	17·1337		5	16·9133		26	15·8531		11	16·5356

Annuities on 2 Joint Lives (Carlisle), 3 per Cent.

Ages.			Ages.			Ages.			Ages.		
35	12	16·4768	**36**	30	15·0677	**38**	9	16·0554	**39**	24	15·0720
	13	16·4167		31	14·9890		10	16·0139		25	14·9969
	14	16·3551		32	14·9045		11	15·9589		26	14·9211
	15	16·2947		33	14·8109		12	15·9052		27	14·8366
	16	16·2411		34	14·7074		13	15·8504		28	14·7522
	17	16·1919		35	14·5969		14	15·7942		29	14·6750
	18	16·1419		36	14·4770		15	15·7393		30	14·6085
	19	16·0883	**37**	0	11·5901		16	15·6911		31	14·5395
	20	16·0307		1	13·4320		17	15·6474		32	14·4652
	21	15·9688		2	14·3946		18	15·6032		33	14·3823
	22	15·8998		3	15·2215		19	15·5557		34	14·2900
	23	15·8252		4	15·6725		20	15·5046		35	14·1906
	24	15·7453		5	16·0033		21	15·4496		36	14·0835
	25	15·6595		6	16·1685		22	15·3866		37	13·9709
	26	15·5704		7	16·2481		23	15·3210		38	13·8526
	27	15·4746		8	16·2711		24	15·2506		39	13·7280
	28	15·3777		9	16·2560		25	15·1371	**40**	0	11·1509
	29	15·2879		10	16·2131		26	15·0917		1	12·9191
	30	15·2089		11	16·1564		27	15·0052		2	13·8424
	31	15·1269		12	16·1011		28	14·9176		3	14·6371
	32	15·0390		13	16·0445		29	14·8374		4	15·0715
	33	14·9418		14	15·9865		30	14·7677		5	15·3910
	34	14·8345		15	15·9298		31	14·6956		6	15·5519
	35	14·7196		16	15·8799		32	14·6179		7	15·6308
36	0	11·7303		17	15·8344		33	14·5314		8	15·6556
	1	13·5965		18	15·7883		34	14·4354		9	15·6437
	2	14·5713		19	15·7388		35	14·3321		10	15·6052
	3	15·4084		20	15·6856		36	14·2209		11	15·5535
	4	15·8647		21	15·6283		37	14·1042		12	15·5031
	5	16·1990		22	15·5640		38	13·9815		13	15·4516
	6	16·3655		23	15·4945	**39**	0	11·2982		14	15·3989
	7	16·4453		24	15·4204		1	13·0912		15	15·3475
	8	16·4676		25	15·3403		2	14·0275		16	15·3028
	9	16·4514		26	15·2571		3	14·8330		17	15·2625
	10	16·4070		27	15·1675		4	15·2730		18	15·2219
	11	16·3486		28	15·0769		5	15·5963		19	15·1782
	12	16·2915		29	14·9935		6	15·7586		20	15·1311
	13	16·2331		30	14·9207		7	15·8378		21	15·0804
	14	16·1734		31	14·8453		8	15·8620		22	15·0231
	15	16·1149		32	14·7642		9	15·8491		23	14·9614
	16	16·0631		33	14·6742		10	15·8092		24	14·8965
	17	16·0158		34	14·5745		11	15·7558		25	14·8230
	18	15·9678		35	14·4672		12	15·7038		26	14·7484
	19	15·9162		36	14·3520		13	15·6507		27	14·6679
	20	15·8609		37	14·2311		14	15·5962		28	14·5865
	21	15·8013	**38**	0	11·4460		15	15·5431		29	14·5123
	22	15·7346		1	13·2640		16	15·4967		30	14·4488
	23	15·6630		2	14·2135		17	15·4547		31	14·3830
	24	15·5857		3	15·0298		18	15·4123		32	14·3120
	25	15·5028		4	15·4754		19	15·3667		33	14·2325
	26	15·4165		5	15·8025		20	15·3177		34	14·1440
	27	15·3239		6	15·9663		21	15·2649		35	14·0484
	28	15·2301		7	16·0456		22	15·2053		36	13·9453
	29	15·1436		8	16·0693		23	15·1412		37	13·8369

Annuities on 2 Joint Lives (Carlisle), 3 per Cent.

Ages.			Ages.			Ages.			Ages.		
40	38	13·7228	42	9	15·2496	43	20	14·5924	44	30	13·8217
	39	13·6027		10	15·2139		21	14·5476		31	13·7678
	40	13·4818		11	15·1653		22	14·4966		32	13·7094
41	0	11·0093		12	15·1180		23	14·4416		33	13·6433
	1	12·7535		13	15·0697		24	14·3820		34	13·5689
	2	13·6640		14	15·0203		25	14·3180		35	13·4881
	3	14·4484		15	14·9722		26	14·2512		36	13·4005
	4	14·8773		16	14·9306		27	14·1790		37	13·3081
	5	15·1933		17	14·8936		28	14·1063		38	13·2107
	6	15·3528		18	14·8562		29	14·0408		39	13·1078
	7	15·4314		19	14·8147		30	13·9859		40	13·0046
	8	15·4566		20	14·7727		31	13·9291		41	12·9066
	9	15·4459		21	14·7260		32	13·8676		42	12·8088
	10	15·4088		22	14·6730		33	13·7982		43	12·7086
	11	15·3586		23	14·6158		34	13·7203		44	12·6003
	12	15·3098		24	14·5540		35	13·6358			
	13	15·2599		25	14·4874		36	13·5444	45	0	10·4298
	14	15·2089		26	14·4181		37	13·4480		1	12·0750
	15	15·1592		27	14·3432		38	13·3465		2	12·9332
	16	15·1160		28	14·2677		39	13·2393		3	13·6743
	17	15·0774		29	14·1994		40	13·1316		4	14·0775
	18	15·0385		30	14·1416		41	13·0292		5	14·3814
	19	14·9999		31	14·0819		42	12·9268		6	14·5348
	20	14·9514		32	14·0172		43	12·8219		7	14·6121
	21	14·9027		33	13·9445					8	14·6392
	22	14·8475		34	13·8631	44	0	10·5816		9	14·6324
	23	14·7881		35	13·7719		1	12·2530		10	14·6007
	24	14·7240		36	13·6784		2	13·1249		11	14·5567
	25	14·6548		37	13·5794		3	13·8775		12	14·5140
	26	14·5829		38	13·4737		4	14·2899		13	14·4704
	27	14·5052		39	13·3622		5	14·5946		14	14·4258
	28	14·4268		40	13·2508		6	14·7497		15	14·3825
	29	14·3556		41	13·1432		7	14·8274		16	14·3455
	30	14·2950		42	13·0363		8	14·8541		17	14·3130
	31	14·2322					9	14·8463		18	14·2804
	32	14·1644	43	0	10·7279		10	14·8099		19	14·2452
	33	14·0884		1	12·4243		11	14·7677		20	14·2072
	34	14·0035		2	13·3095		12	14·7236		21	14·1660
	35	13·9117		3	14·0730		13	14·6784		22	14·1190
	36	13·8125		4	14·4910		14	14·6321		23	14·0682
	37	13·7082		5	14·7997		15	14·5873		24	14·0133
	38	13·5983		6	14·9564		16	14·5487		25	13·9539
	39	13·4825		7	15·0346		17	14·5148		26	13·8921
	40	13·3660		8	15·0607		18	14·4806		27	13·8252
	41	13·2546		9	15·0519		19	14·4438		28	13·7580
42	0	10·8690		10	15·0175		20	14·4040		29	13·6981
	1	12·5893		11	14·9705		21	14·3610		30	13·6487
	2	13·4873		12	14·9248		22	14·3121		31	13·5977
	3	14·2613		13	14·8780		23	14·2595		32	13·5421
	4	14·6848		14	14·8302		24	14·2020		33	13·4795
	5	14·9971		15	14·7837		25	14·1402		34	13·4085
	6	15·1552		16	14·7437		26	14·0760		35	13·3314
	7	15·2336		17	14·7082		27	14·0065		36	13·2476
	8	15·2593		18	14·6724		28	13·9363		37	13·1592
				19	14·6339		29	13·8739		38	13·0659

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Ages.			Ages.			Ages.			Ages.		
45	39	12·9674	47	0	10·1014	48	6	13·8129	49	11	13·5687
	40	12·8686		1	11·6900		7	13·8884		12	13·5322
	41	12·7751		2	12·5179		8	13·9164		13	13·4949
	42	12·6819		3	13·2342		9	13·9123		14	13·4568
	43	12·5865		4	13·6274		10	13·8705		15	13·4199
	44	12·4831		5	13·9191		11	13·8453		16	13·3891
	45	12·3711		6	14·0687		12	13·8073		17	13·3626
				7	14·1449		13	13·7684		18	13·3361
46	0	10·2699		8	14·1727		14	13·7285		19	13·3074
	1	11·8876		9	14·1677		15	13·6901		20	13·2761
	2	12·7310		10	14·1387		16	13·6577		21	13·2422
	3	13·4601		11	14·0978		17	13·6297		22	13·2029
	4	13·8601		12	14·0582		18	13·6017		23	13·1603
	5	14·1565		13	14·0177		19	13·5714		24	13·1140
	6	14·3080		14	13·9763		20	13·5384		25	13·0638
	7	14·3848		15	13·9362		21	13·5027		26	13·0116
	8	14·4123		16	13·9023		22	13·4615		27	12·9550
	9	14·4064		17	13·8728		23	13·4168		28	12·8983
	10	14·3760		18	13·8433		24	13·3684		29	12·8489
	11	14·3336		19	13·8113		25	13·3158		30	12·8099
	12	14·2925		20	13·7767		26	13·2613		31	12·7699
	13	14·2504		21	13·7391		27	13·2022		32	12·7263
	14	14·2074		22	13·6960		28	13·1429		33	12·6762
	15	14·1657		23	13·6493		29	13·0909		34	12·6189
	16	14·1303		24	13·5987		30	13·0493		35	12·5563
	17	14·0993		25	13·5439		31	13·0067		36	12·4879
	18	14·0682		26	13·4868		32	12·9602		37	12·4155
	19	14·0346		27	13·4253		33	12·9070		38	12·3390
	20	13·9983		28	13·3634		34	12·8463		39	12·2579
	21	13·9590		29	13·3088		35	12·7801		40	12·1770
	22	13·9139		30	13·2647		36	12·7078		41	12·1017
	23	13·8652		31	13·2194		37	12·6314		42	12·0273
	24	13·8124		32	13·1700		38	12·5506		43	11·9514
	25	13·7553		33	13·1136		39	12·4651		44	11·8684
	26	13·6960		34	13·0495		40	12·3797		45	11·7778
	27	13·6317		35	12·9796		41	12·2999		46	11·6760
	28	13·5672		36	12·9035		42	12·2207		47	11·5621
	29	13·5100		37	12·8231		43	12·1399		48	11·4322
	30	13·4632		38	12·7382		44	12·0517		49	11·2793
	31	13·4151		39	12·6483		45	11·9556			
	32	13·3627		40	12·5584		46	11·8481	50	0	9·5158
	33	13·3031		41	12·4740		47	11·7281		1	11·0033
	34	13·2356		42	12·3902		48	11·5917		2	11·7770
	35	13·1621		43	12·3045					3	12·4483
	36	13·0821		44	12·2112	49	0	9·7253		4	12·8174
	37	12·9978		45	12·1097		1	11·1360		5	13·0924
	38	12·9087		46	11·9965		2	12·0419		6	13·2346
	39	12·8145		47	11·8705		3	12·7294		7	13·3082
	40	12·7201					4	13·1071		8	13·3365
	41	12·6311	48	0	9·9217		5	13·3882		9	13·3341
	42	12·5427		1	11·4792		6	13·5331		10	13·3092
	43	12·4521		2	12·2905		7	13·6077		11	13·2731
	44	12·3537		3	12·9930		8	13·6359		12	13·2383
	45	12·2469		4	13·3788		9	13·6327		13	13·2026
	46	12·1281		5	13·6655		10	13·6064		14	13·1660

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Ages.			Ages.			Ages.			Ages.		
50	15	13·1308	51	18	12·7471	52	20	12·3870	53	21	12·0477
	16	13·1015		19	12·7218		21	12·3585		22	12·0160
	17	13·0765		20	12·6936		22	12·3248		23	11·9813
	18	13·0516		21	12·6633		23	12·2882		24	11·9434
	19	13·0244		22	12·6278		24	12·2483		25	11·9020
	20	12·9949		23	12·5893		25	12·2047		26	11·8590
	21	12·9627		24	12·5473		26	12·1595		27	11·8120
	22	12·9254		25	12·5015		27	12·1103		28	11·7653
	23	12·8848		26	12·4540		28	12·0612		29	11·7254
	24	12·8403		27	12·4024		29	12·0191		30	11·6955
	25	12·7927		28	12·3509		30	11·9871		31	11·6652
	26	12·7429		29	12·3064		31	11·9545		32	11·6325
	27	12·6887		30	12·2722		32	11·9190		33	11·5936
	28	12·6347		31	12·2373		33	11·8778		34	11·5491
	29	12·5878		32	12·2000		34	11·8303		35	11·5002
	30	12·5512		33	12·1551		35	11·7781		36	11·4464
	31	12·5137		34	12·1045		36	11·7209		37	11·3896
	32	12·4730		35	12·0490		37	11·6604		38	11·3294
	33	12·3973		36	11·9881		38	11·5962		39	11·2655
	34	12·3720		37	11·9237		39	11·5282		40	11·2023
	35	12·3130		38	11·8556		40	11·4608		41	11·1345
	36	12·2483		39	11·7833		41	11·3989		42	11·0887
	37	12·1800		40	11·7114		42	11·3384		43	11·0318
	38	12·1077		41	11·6452		43	11·2770		44	10·9691
	39	12·0310		42	11·5802		44	11·2094		45	10·9000
	40	11·9547		43	11·5140		45	11·1351		46	10·8212
	41	11·8839		44	11·4414		46	11·0507		47	10·7317
	42	11·8142		45	11·3617		47	10·9552		48	10·6278
	43	11·7432		46	11·2716		48	10·8449		49	10·5030
	44	11·6654		47	11·1700		49	10·7131		50	10·3603
	45	11·5802		48	11·0532		50	10·5630		51	10·1981
	46	11·4843		49	10·9144		51	10·3907		52	10·0278
	47	11·3765		50	10·7569		52	10·2148		53	9·8486
	48	11·2531		51	10·5792						
	49	11·1072				53	0	8·8362	54	0	8·6027
	50	10·9423	52	0	9·0660		1	10·2069		1	9·9333
				1	10·4763		2	10·9178		2	10·6225
51	0	9·2925		2	11·2084		3	11·5367		3	11·2234
	1	10·7417		3	11·8451		4	11·8774		4	11·5542
	2	11·4947		4	12·1955		5	12·1324		5	11·8022
	3	12·1489		5	12·4573		6	12·2652		6	11·9317
	4	12·5087		6	12·5933		7	12·3352		7	12·0002
	5	12·7772		7	12·6646		8	12·3634		8	12·0283
	6	12·9163		8	12·6929		9	12·3634		9	12·0290
	7	12·9888		9	12·6922		10	12·3425		10	12·0094
	8	13·0472		10	12·6700		11	12·3112		11	11·9797
	9	13·0156		11	12·6371		12	12·2811		12	11·9511
	10	12·9921		12	12·6054		13	12·2502		13	11·9218
	11	12·9576		13	12·5730		14	12·2186		14	11·8917
	12	12·9244		14	12·5397		15	12·1881		15	11·8627
	13	12·8903		15	12·5077		16	12·1633		16	11·8393
	14	12·8554		16	12·4814		17	12·1425		17	11·8198
	15	12·8218		17	12·4593		18	12·1219		18	11·8005
	16	12·7941		18	12·4373		19	12·0993		19	11·7794
	17	12·7705		19	12·4132		20	12·0747		20	11·7563

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Ages.			Ages.			Ages.			Ages.		
54	21	11·7314	55	20	11·4284	56	18	11·1323	57	15	10·8382
	22	11·7010		21	11·4047		19	11·1139		16	10·8187
	23	11·6682		22	11·3765		20	11·0936		17	10·8029
	24	11·6323		23	11·3455		21	11·0714		18	10·7874
	25	11·5929		24	11·3115		22	11·0448		19	10·7703
	26	11·5520		25	11·2742		23	11·0156		20	10·7514
	27	11·5074		26	11·2357		24	10·9835		21	10·7305
	28	11·4629		27	11·1929		25	10·9482		22	10·7057
	29	11·4252		28	11·1507		26	10·9115		23	10·6807
	30	11·3973		29	11·1151		27	10·8711		24	10·6479
	31	11·3691		30	11·0890		28	10·8310		25	10·6145
	32	11·3383		31	11·0628		29	10·7974		26	10·5798
	33	11·3024		32	11·0342		30	10·7732		27	10·5415
	34	11·2607		33	11·0008		31	10·7488		28	10·5035
	35	11·2148		34	10·9617		32	10·7223		29	10·4718
	36	11·1644		35	10·9189		33	10·6911		30	10·4493
	37	11·1111		36	10·8716		34	10·6547		31	10·4267
	38	11·0547		37	10·8217		35	10·6146		32	10·4021
	39	10·9947		38	10·7689		36	10·5703		33	10·3731
	40	10·9357		39	10·7128		37	10·5237		34	10·3391
	41	10·8823		40	10·6577		38	10·4767		35	10·3111
	42	10·8304		41	10·6083		39	10·4219		36	10·2603
	43	10·7781		42	10·5606		40	10·3706		37	10·2167
	44	10·7202		43	10·5125		41	10·3250		38	10·1703
	45	10·6561		44	10·4593		42	10·2813		39	10·1264
	46	10·5826		45	10·4002		43	10·2374		40	10·0740
	47	10·4992		46	10·3323		44	10·1887		41	10·0321
	48	10·4016		47	10·2563		45	10·1344		42	9·9922
	49	10·2836		48	10·1630		46	10·0717		43	9·9523
	50	10·1482		49	10·0518		47	9·9994		44	9·9079
	51	9·9937		50	9·9236		48	9·9141		45	9·8583
	52	9·8313		51	9·7769		49	9·8096		46	9·8006
	53	9·6602		52	9·6223		50	9·6885		47	9·7338
	54	9·4798		53	9·4592		51	9·5494		48	9·6545
				54	9·2871		52	9·4048		49	9·5564
55	0	8·3630		55	9·1027		53	9·2476		50	9·4424
	1	9·6525					54	9·0837		51	9·3108
	2	10·3195	56	0	8·1187		55	8·9077		52	9·1718
	3	10·9019		1	9·3664		56	8·7212		53	9·0247
	4	11·2225		2	10·0110					54	8·8689
	5	11·4633		3	10·5745	57	0	7·8692		55	8·7013
	6	11·5893		4	10·8848		1	9·0747		56	8·5233
	7	11·6563		5	11·1182		2	9·6965		57	8·3341
	8	11·6842		6	11·2406		3	10·2408			
	9	11·6856		7	11·3060		4	10·5406	58	0	7·6205
	10	11·6672		8	11·3336		5	10·7664		1	8·7840
	11	11·6391		9	11·3355		6	10·8851		2	9·3834
	12	11·6120		10	11·3184		7	10·9488		3	9·9087
	13	11·5842		11	11·2917		8	10·9761		4	10·1981
	14	11·5556		12	11·2661		9	10·9785		5	10·4164
	15	11·5281		13	11·2398		10	10·9625		6	10·5314
	16	11·5060		14	11·2127		11	10·9373		7	10·5934
	17	11·4878		15	11·1868		12	10·9132		8	10·6202
	18	11·4698		16	11·1660		13	10·8883		9	10·6231
	19	11·4501		17	11·1490		14	10·8627		10	10·6058

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Ages.			Ages.			Ages.			Ages.		
58	11	10·5844	59	6	10·1943	60	0	7·1631	60	55	8·0984
	12	10·5616		7	10·2547		1	8·2496		56	7·9443
	13	10·5382		8	10·2811		2	8·8077		57	7·7795
	14	10·5140		9	10·2844		3	9·2983		58	7·6098
	15	10·4909		10	10·2705		4	9·5685		59	7·4464
	16	10·4726		11	10·2480		5	9·7731		60	7·2952
	17	10·4570		12	10·2265		6	9·8813			
	18	10·4436		13	10·2044		7	9·9401	61	0	6·9688
	19	10·4277		14	10·1815		8	9·9661		1	8·0222
	20	10·4101		15	10·1597		9	9·9698		2	8·5623
	21	10·3907		16	10·1427		10	9·9568		3	9·0379
	22	10·3673		17	10·1290		11	9·9356		4	9·2999
	23	10·3415		18	10·1158		12	9·9152		5	9·4986
	24	10·3133		19	10·1010		13	9·8943		6	9·6038
	25	10·2814		20	10·0847		14	9·8726		7	9·6613
	26	10·2486		21	10·0666		15	9·8526		8	9·6870
	27	10·2124		22	10·0446		16	9·8361		9	9·6911
	28	10·1763		23	10·0203		17	9·8234		10	9·6790
	29	10·1465		24	9·9934		18	9·8112		11	9·6587
	30	10·1255		25	9·9636		19	9·7976		12	9·6395
	31	10·1046		26	9·9326		20	9·7824		13	9·6196
	32	10·0818		27	9·8982		21	9·7655		14	9·5991
	33	10·0548		28	9·8641		22	9·7449		15	9·5796
	34	10·0162		29	9·8359		23	9·7220		16	9·5646
	35	9·9881		30	9·8164		24	9·6966		17	9·5531
	36	9·9494		31	9·7971		25	9·6684		18	9·5417
	37	9·9087		32	9·7759		26	9·6390		19	9·5290
	38	9·8657		33	9·7508		27	9·6064		20	9·5149
	39	9·8201		34	9·7211		28	9·5739		21	9·4991
	40	9·7758		35	9·6884		29	9·5474		22	9·4798
	41	9·7373		36	9·6522		30	9·5292		23	9·4583
	42	9·7010		37	9·6141		31	9·5113		24	9·4341
	43	9·6649		38	9·5740		32	9·4917		25	9·4074
	44	9·6246		39	9·5314		33	9·4682		26	9·3794
	45	9·5795		40	9·4902		34	9·4405		27	9·3484
	46	9·5266		41	9·4549		35	9·4098		28	9·3175
	47	9·4651		42	9·4218		36	9·3758		29	9·2924
	48	9·3915		43	9·3892		37	9·3402		30	9·2755
	49	9·2999		44	9·3527		38	9·3025		31	9·2588
	50	9·1927		45	9·3118		39	9·2627		32	9·2406
	51	9·0684		46	9·2636		40	9·2244		33	9·2187
	52	8·9369		47	9·2071		41	9·1919		34	9·1926
	53	8·7975		48	9·1390		42	9·1618		35	9·1638
	54	8·6496		49	9·0533		43	9·1324		36	9·1319
	55	8·4902		50	8·9527		44	9·0995		37	9·0983
	56	8·3207		51	8·8353		45	9·0625		38	9·0629
	57	8·1400		52	8·7109		46	9·0186		39	9·0256
	58	7·9545		53	8·5789		47	8·9668		40	8·9898
				54	8·4386		48	8·9038		41	8·9599
59	0	7·3833		55	8·2870		49	8·8239		42	8·9325
	1	8·5070		56	8·1254		50	8·7294		43	8·9061
	2	9·0849		57	7·9530		51	8·6186		44	8·8764
	3	9·5922		58	7·7756		52	8·5010		45	8·8429
	4	9·8717		59	7·6046		53	8·3759		46	8·8030
	5	10·0829					54	8·2426		47	8·7556

Annuities on 2 Joint Lives (Carlisle), 3 per Cent.

Ages.			Ages.			Ages.			Ages.		
61	48	8·6974	62	40	8·7572	63	31	8·7554	64	21	8·6887
	49	8·6228		41	8·7297		32	8·7398		22	8·6729
	50	8·5340		42	8·7049		33	8·7207		23	8·6551
	51	8·4293		43	8·6811		34	8·6979		24	8·6350
	52	8·3179		44	8·6545		35	8·6724		25	8·6124
	53	8·1992		45	8·6244		36	8·6442		26	8·5886
	54	8·0726		46	8·5882		37	8·6145		27	8·5620
	55	7·9351		47	8·5450		38	8·5833		28	8·5356
	56	7·7879		48	8·4915		39	8·5504		29	8·5144
	57	7·6301		49	8·4220		40	8·5189		30	8·5010
	58	7·4675		50	8·3389		41	8·4940		31	8·4879
	59	7·3109		51	8·2402		42	8·4715		32	8·4734
	60	7·1664		52	8·1350		43	8·4503		33	8·4558
	61	7·0438		53	8·0226		44	8·4265		34	8·4344
				54	7·9025		45	8·3996		35	8·4106
62	0	6·7778		55	7·7715		46	8·3671		36	8·3841
	1	7·7983		56	7·6311		47	8·3279		37	8·3563
	2	8·3208		57	7·4803		48	8·2789		38	8·3271
	3	8·7815		58	7·3247		49	8·2146		39	8·2962
	4	9·0353		59	7·1749		50	8·1369		40	8·2672
	5	9·2281		60	7·0369		51	8·0442		41	8·2440
	6	9·3305		61	6·9206		52	7·9452		42	8·2238
	7	9·3867		62	6·8037		53	7·8390		43	8·2049
	8	9·4121					54	7·7253		44	8·1839
	9	9·4165	63	0	6·5844		55	7·6011		45	8·1600
	10	9·4052		1	7·5716		56	7·4675		46	8·1309
	11	9·3860		2	8·0760		57	7·3237		47	8·0956
	12	9·3677		3	8·5216		58	7·1750		48	8·0510
	13	9·3489		4	8·7671		59	7·0320		49	7·9917
	14	9·3295		5	8·9539		60	6·9007		50	7·9196
	15	9·3110		6	9·0533		61	6·7906		51	7·8329
	16	9·2970		7	9·1081		62	6·6801		52	7·7400
	17	9·2862		8	9·1331		63	6·5630		53	7·6403
	18	9·2758		9	9·1379					54	7·5331
	19	9·2641		10	9·1274	64	0	6·3818		55	7·4157
	20	9·2510		11	9·1092		1	7·3343		56	7·2891
	21	9·2363		12	9·0919		2	7·8198		57	7·1523
	22	9·2182		13	9·0741		3	8·2496		58	7·0108
	23	9·1974		14	9·0557		4	8·4863		59	6·8748
	24	9·1751		15	9·0382		5	8·6669		60	6·7502
	25	9·1498		16	9·0251		6	8·7631		61	6·6465
	26	9·1233		17	9·0152		7	8·8165		62	6·5424
	27	9·0937		18	9·0057		8	8·8410		63	6·4321
	28	9·0644		19	8·9949		9	8·8460		64	6·3083
	29	9·0406		20	8·9829		10	8·8363			
	30	9·0249		21	8·9692		11	8·8191	65	0	6·1740
	31	9·0095		22	8·9523		12	8·8029		1	7·0891
	32	8·9925		23	8·9332		13	8·7860		2	7·5569
	33	8·9721		24	8·9118		14	8·7686		3	7·9704
	34	8·9476		25	8·8878		15	8·7522		4	8·1980
	35	8·9206		26	8·8627		16	8·7399		5	8·3721
	36	8·8905		27	8·8346		17	8·7308		6	8·4651
	37	8·8589		28	8·8067		18	8·7222		7	8·5168
	38	8·8257		29	8·7842		19	8·7124		8	8·5409
	39	8·7906		30	8·7697		20	8·7013		9	8·5462

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Ages.			Ages			Ages.			Ages.		
65	10	8·5372	65	65	6·0469	66	53	7·2064	67	40	7·4450
	11	8·5211					54	7·1124		41	7·4273
	12	8·5058	66	0	5·9583		55	7·0087		42	7·4127
	13	8·4899		1	6·8380		56	6·8961		43	7·4000
	14	8·4735		2	7·2841		57	6·7737		44	7·3859
	15	8·4580		3	7·6806		58	6·6466		45	7·3700
	16	8·4466		4	7·8989		59	6·5247		46	7·3500
	17	8·4383		5	8·0661		60	6·4136		47	7·3252
	18	8·4304		6	8·1557		61	6·3226		48	7·2926
	19	8·4215		7	8·2057		62	6·2315		49	7·2474
	20	8·4114		8	8·2293		63	6·1349		50	7·1910
	21	8·3999		9	8·2348		64	6·0256		51	7·1201
	22	8·3852		10	8·2266		65	5·9062		52	7·0472
	23	8·3686		11	8·2115		66	5·7735		53	6·9666
	24	8·3498		12	8·1971					54	6·8792
	25	8·3286		13	8·1822	67	0	5·8676		55	6·7824
	26	8·3062		14	8·1668		1	6·5753		56	6·6770
	27	8·2811		15	8·1523		2	7·0007		57	6·5619
	28	8·2561		16	8·1416		3	7·3796		58	6·4422
	29	8·2362		17	8·1340		4	7·5881		59	6·3273
	30	8·2237		18	8·1269		5	7·7483		60	6·2230
	31	8·2117		19	8·1189		6	7·8342		61	6·1382
	32	8·1985		20	8·1097		7	7·8824		62	6·0537
	33	8·1821		21	8·0992		8	7·9054		63	5·9639
	34	8·1623		22	8·0857		9	7·9111		64	5·8619
	35	8·1401		23	8·0703		10	7·9036		65	5·7503
	36	8·1153		24	8·0528		11	7·8895		66	5·6257
	37	8·0892		25	8·0329		12	7·8760		67	5·4863
	38	8·0619		26	8·0119		13	7·8621			
	39	8·0330		27	7·9882		14	7·8476	68	0	5·5027
	40	8·0060		28	7·9646		15	7·8340		1	6·3046
	41	7·9848		29	7·9459		16	7·8242		2	6·7085
	42	7·9666		30	7·9345		17	7·8173		3	7·0695
	43	7·9500		31	7·9235		18	7·8109		4	7·2678
	44	7·9314		32	7·9114		19	7·8036		5	7·4206
	45	7·9104		33	7·8964		20	7·7953		6	7·5028
	46	7·8846		34	7·8779		21	7·7858		7	7·5487
	47	7·8529		35	7·8573		22	7·7734		8	7·5713
	48	7·8125		36	7·8341		23	7·7592		9	7·5772
	49	7·7580		37	7·8098		24	7·7430		10	7·5704
	50	7·6913		38	7·7843		25	7·7244		11	7·5573
	51	7·6105		39	7·7573		26	7·7048		12	7·5448
	52	7·5238		40	7·7322		27	7·6825		13	7·5318
	53	7·4477		41	7·7128		28	7·6603		14	7·5183
	54	7·3300		42	7·6965		29	7·6429		15	7·5055
	55	7·2194		43	7·6819		30	7·6324		16	7·4964
	56	7·0997		44	7·6657		31	7·6224		17	7·4902
	57	6·9701		45	7·6473		32	7·6114		18	7·4845
	58	6·8358		46	7·6245		33	7·5976		19	7·4779
	59	6·7068		47	7·5964		34	7·5805		20	7·4705
	60	6·5889		48	7·5600		35	7·5614		21	7·4619
	61	6·4915		49	7·5103		36	7·5398		22	7·4509
	62	6·3940		50	7·4488		37	7·5172		23	7·4375
	63	6·2905		51	7·3738		38	7·4934		24	7·4225
	64	6·1739		52	7·2933		39	7·4682		25	7·4053

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Ages.			Ages.			Ages.			Ages.		
68	26	7·3871	69	11	7·2143	69	66	5·2855	70	50	6·3379
	27	7·3662		12	7·2027		67	5·1635		51	6·2845
	28	7·3454		13	7·1906		68	5·0279		52	6·2268
	29	7·3291		14	7·1780		69	4·8770		53	6·1640
	30	7·3196		15	7·1662					54	6·0956
	31	7·3105		16	7·1578	70	0	5·0179		55	6·0188
	32	7·3005		17	7·1521		1	5·7384		56	5·9343
	33	7·2879		18	7·1470		2	6·0984		57	5·8412
	34	7·2722		19	7·1412		3	6·4220		58	5·7433
	35	7·2544		20	7·1345		4	6·5993		59	5·6495
	36	7·2343		21	7·1268		5	6·7368		60	5·5650
	37	7·2134		22	7·1165		6	6·8109		61	5·4985
	38	7·1913		23	7·1046		7	6·8530		62	5·4326
	39	7·1679		24	7·0908		8	6·8738		63	5·3625
	40	7·1464		25	7·0749		9	6·8797		64	5·2819
	41	7·1303		26	7·0580		10	6·8743		65	5·1931
	42	7·1173		27	7·0386		11	6·8630		66	5·0929
	43	7·1063		28	7·0191		12	6·8523		67	4·9794
	44	7·0941		29	7·0039		13	6·8411		68	4·8528
	45	7·0804		30	6·9953		14	6·8294		69	4·7115
	46	7·0631		31	6·9871		15	6·8184		70	4·5556
	47	7·0413		32	6·9781		16	6·8107			
	48	7·0124		33	6·9665		17	6·8056	71	0	4·7625
	49	6·9714		34	6·9521		18	6·8011		1	5·4412
	50	6·9199		35	6·9358		19	6·7959		6	6·4494
	51	6·8562		36	6·9173		20	6·7899		8	6·5091
	52	6·7875		37	6·8978		21	6·7830		9	6·5150
	53	6·7130		38	6·8773		22	6·7737		11	6·4997
	54	6·6322		39	6·8556		23	6·7628		16	6·4515
	55	6·5422		40	6·8356		24	6·7502		21	6·4269
	56	6·4438		41	6·8210		25	6·7356		26	6·3694
	57	6·3361		42	6·8095		26	6·7200		31	6·3093
	58	6·2237		43	6·8000		27	6·7019		36	6·2510
	59	6·1159		44	6·7896		28	6·6838		41	6·1693
	60	6·0183		45	6·7779		29	6·6698		46	6·1270
	61	5·9398		46	6·7630		30	6·6619		51	5·9772
	62	5·8616		47	6·7441		31	6·6546		56	5·6563
	63	5·7785		48	6·7185		32	6·6464		61	5·2535
	64	5·6838		49	6·6817		33	6·6360		66	4·8819
	65	5·5799		50	6·6348		34	6·6227		71	4·2173
	66	5·4635		51	6·5764		35	6·6077			
	67	5·3328		52	6·5133		36	6·5906	72	0	4·5206
	68	5·1881		53	6·4448		37	6·5727		2	5·4770
				54	6·3703		38	6·5537		7	6·1460
69	0	5·2635		55	6·2870		39	6·5335		9	6·1707
	1	6·0250		56	6·1957		40	6·5152		12	6·1478
	2	6·4071		57	6·0952		41	6·5019		17	6·1083
	3	6·7495		58	5·9902		42	6·4917		22	6·0828
	4	6·9374		59	5·8894		43	6·4836		27	6·0224
	5	7·0822		60	5·7985		44	6·4747		32	5·9761
	6	7·1608		61	5·7260		45	6·4649		37	5·9140
	7	7·2051		62	5·6541		46	6·4522		42	5·8460
	8	7·2266		63	5·5776		47	6·4358		47	5·8063
	9	7·2325		64	5·4901		48	6·4134		52	5·6363
	10	7·2265		65	5·3938		49	6·3803		57	5·3102

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Ages.			Ages.			Ages.			Ages.		
72	62	4·9629	**75**	70	3·8041	**78**	68	3·6643	**81**	71	2·9923
	67	4·5799		75	3·2306		73	3·1521		76	2·6181
	72	3·9040	**76**	0	3·7913		78	2·7836		81	2 2834
73	0	4·3011		1	4·3129	**79**	0	3·3350	**82**	0	2·8651
	3	5·4740		6	5·0801		4	4·3019		2	3·4122
	8	5·8535		9	5·1334		9	4·4812		7	3·7971
	9	5·8592		11	5·1234		14	4·4559		9	3·8146
	13	5·8293		16	5·0897		19	4·4409		12	3·8048
	18	5·7985		21	5·0758		24	4·4221		17	3·7855
	23	5·7707		26	5·0378		29	4·3800		22	3·7780
	28	5·7087		31	4·9970		34	4·3614		27	3·7509
	33	5·6730		36	4·9589		39	4·3147		32	3·7312
	38	5·6085		41	4·9011		44	4·2898		37	3·7048
	43	5·5558		46	4·8827		49	4·2666		42	3·6704
	48	5·5128		51	4·7964		54	4·1398		47	3·6654
	53	5·3260		56	4·5813		59	3·9052		52	3·6071
	58	4·9946		61	4·2991		64	3·7332		57	3·4618
	63	4·6987		66	4·0548		69	3·4415		62	3·2966
	68	4·2973		71	3·5679		74	2·9518		67	3·1384
	73	3·6306		76	3·0675		79	2·6100		72	2·7807
74	0	4·1065	**77**	0	3·6473	**80**	0	3·1827		77	2·4706
	4	5·3572		2	4·3864		5	4·1747		82	2·1347
	8	5·5776		7	4·9057		10	4·2623	**83**	0	2·7103
	9	5·5833		9	4·9269		15	4·2349		3	3·3740
	14	5·5470		12	4·9114		20	4·2251		8	3·5917
	19	5·5240		17	4·8836		25	4·2035		10	3·5956
	24	5·4933		22	4·8690		30	4·1682		13	3·5835
	29	5·4342		27	4·8275		35	4·1479		18	3·5690
	34	5·4027		32	4·7969		40	4·1016		23	3·5603
	39	5·3371		37	4·7547		45	4·0872		28	3·5312
	44	5·2993		42	4·7062		50	4·0540		33	3·5181
	49	5·2464		47	4·6908		55	3·9199		38	3·4895
	54	5·0483		52	4·5873		60	3·6954		43	3·4636
	59	4·7188		57	4·3623		65	3·5423		48	3·4586
	64	4·4585		62	4·1196		70	3·2284		53	3·3903
	69	4·0352		67	3·8626		75	2·7905		58	3·2380
	74	3·4001		72	3·3529		80	2·4589		63	3·1050
75	0	3·9475		77	2·9265	**81**	0	3·0152		68	2·9365
	5	5·2441	**78**	0	3·5008		1	3·4114		73	2·5768
	8	5·3505		3	4·4133		6	3·9846		78	2·3178
	9	5·3730		8	4·7113		9	4·0263		83	1·9776
	10	5·3530		9	4·7167		11	4·0212	**84**	0	2·5601
	15	5·3144		13	4·6961		16	3·9974		4	3·2541
	20	5·2977		18	4·6748		21	3·9902		9	3·3857
	25	5·2632		23	4·6583		26	3·9659		14	3·3695
	30	5·2130		28	4·6144		31	3·9381		19	3·3596
	35	5·1790		33	4·5922		36	3·9148		24	3·3494
	40	5·1146		38	4·5470		41	3·8735		29	3·3210
	45	5·0893		43	4·5101		46	3·8653		34	3·3109
	50	5·0217		48	4·4933		51	3·8190		39	3·2806
	55	4·8133		53	4·3753		56	3·6809		44	3·2636
	60	4·4975		58	4·1414		61	3·4840		49	3·2546
	65	4·2564		63	3·9387		66	3·3323		54	3·1800

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Ages.			Ages.			Ages.			Ages.		
84	59	3·0252	87	37	2·7508	90	15	2·4411	92	77	1·7442
	64	2·9162		42	2·7275		20	2·4366		82	1·5311
	69	2·7355		47	2·7257		25	2·4279		87	1·2445
	74	2·3906		52	2·6908		30	2·4107		92	1·1204
	79	2·1549		57	2·5995		35	2·4025	93	0	2·0102
	84	1·8251		62	2·4881		40	2·3804		3	2·4817
85	0	2·4022		67	2·3886		45	2·3746		8	2·6366
	5	3·1023		72	2·1506		50	2·3650		10	2·6400
	10	3·1667		77	1·9348		55	2·3070		13	2·6320
	15	3·1486		82	1·7038		60	2·1989		18	2·6236
	20	3·1427		87	1·3887		65	2·1311		23	2·6181
	25	3·1304	88	0	2·0814		70	1·9870		28	2·5992
	30	3·1067		3	2·5644		75	1·7578		33	2·5916
	35	3·0955		8	2·7220		80	1·5892		38	2·5728
	40	3·0652		10	2·7255		85	1·3354		43	2·5558
	45	3·0561		13	2·7176		90	1·0884		48	2·5576
	50	3·0403		18	2·7073	91	0	1·8587		53	2·5183
	55	2·9606		23	2·7019		1	2·0886		58	2·4190
	60	2·8120		28	2·6823		6	2·4109		63	2·3348
	65	2·7185		33	2·6734		9	2·4364		68	2·2278
	70	2·5225		38	2·6546		11	2·4336		73	1·9774
	75	2·2171		43	2·6366		16	2·4216		78	1·7955
	80	1·9929		48	2·6350		21	2·4182		83	1·5490
	85	1·6566		53	2·5906		26	2·4068		88	1·2715
86	0	2·2666		58	2·4891		31	2·3923		93	1·2261
	1	2·5459		63	2·3967		36	2·3813	94	0	2·0496
	6	2·9447		68	2·2848		41	2·3595		4	2·5870
	9	2·9762		73	2·0328		46	2·3575		9	2·6904
	11	2·9728		78	1·8486		51	2·3392		14	2·6789
	16	2·9568		83	1·6056		56	2·2722		19	2·6737
	21	2·9528		88	1·3284		61	2·1691		24	2·6663
	26	2·9384	89	0	2·0022		66	2·0957		29	2·6459
	31	2·9196		4	2·5191		71	1·9185		34	2·6403
	36	2·9061		9	2·6174		76	1·7071		39	2·6179
	41	2·8786		14	2·6066		81	1·5204		44	2·6064
	46	2·8742		19	2·5993		86	1·2554		49	2·6067
	51	2·8488		24	2·5924		91	1·0503		54	2·5592
	56	2·7651		29	2·5723	92	0	1·9201		59	2·4471
	61	2·6336		34	2·5653		2	2·2758		64	2·3756
	66	2·5407		39	2·5442		7	2·5197		69	2·2486
	71	2·3219		44	2·5323		9	2·5315		74	1·9826
	76	2·0614		49	2·5280		12	2·5262		79	1·8014
	81	1·8339		54	2·4763		17	2·5155		84	1·5366
	86	1·5086		59	2·3676		22	2·5115		89	1·2662
87	0	2·1491		64	2·2900		27	2·4964		94	1·3016
	2	2·5363		69	2·1634		32	2·4852	95	0	2·0723
	7	2·8073		74	1·9111		37	2·4704		5	2·6578
	9	2·8205		79	1·7386		42	2·4499		10	2·7137
	12	2·8148		84	1·4963		47	2·4506		15	2·6994
	17	2·8016		89	1·2479		52	2·4220		20	2·6979
	22	2·7973	90	0	1·8761		57	2·3400		25	2·6879
	27	2·7803		5	2·4051		62	2·2439		30	2·6697
	32	2·7670		10	2·4539		67	2·1562		35	2·6632
							72	1·9395			

Annuities on 2 Joint Lives (Carlisle), 3 per Cent.

Ages.			Ages.			Ages.			Ages.		
95	40	2·6385	**97**	62	2·2995	**99**	79	1·6217	**101**	96	·8511
	45	2·6333		67	2·2428		84	1·4502		101	·6872
	50	2·6295		72	2·0542		89	1·2332	**102**	0	·6398
	55	2·5750		77	1·8753		94	1·2342		2	·7143
	60	2·4584		82	1·6787		99	1·2939		7	·7630
	65	2·3977		87	1·3784					12	·7662
	70	2·2476		92	1·2301	**100**	0	1·3372		17	·7644
	75	1·9926		97	1·3948		5	1·6373		22	·7643
	80	1·8063					10	1·6680		27	·7634
	85	1·5086	**98**	0	1·8373		15	1·6625		32	·7614
	90	1·2165		3	2·2272		20	1·6608		37	·7606
	95	1·3833		8	2·3557		25	1·6476		42	·7573
				11	2·3586		30	1·6512		47	·7572
96	0	2·0432		13	2·3550		35	1·6503		52	·7563
	1	2·2904		18	2·3474		40	1·6410		57	·7505
	6	2·6355		23	2·3507		45	1·6371		62	·7353
	11	2·6622		28	2·3331		50	1·6394		67	·7285
	16	2·6492		33	2·3288		55	1·6247		72	·7048
	21	2·6503		38	2·3180		60	1·5767		77	·6699
	26	2·6378		43	2·3030		65	1·5551		82	·6381
	31	2·6233		48	2·3077		70	1·5129		87	·5718
	36	2·6150		53	2·2888		75	1·3925		92	·5200
	41	2·5915		58	2·2248		80	1·3158		97	·5683
	46	2·5909		63	2·1635		85	1·1703		102	·3872
	51	2·5807		68	2·1081		90	·9788	**103**	0	·2738
	56	2·5226		73	1·9192		95	1·0717		3	·3101
	61	2·4173		78	1·7823		100	·9909		8	·3215
	66	2·3592		83	1·5871					11	·3219
	71	2·1841		88	1·3290	**101**	0	·9961		13	·3219
	76	1·9597		93	1·2625		1	1·0930		18	·3214
	81	1·7630		98	1·3749		6	1·2076		23	·3213
	86	1·4576					11	1·2189		28	·3208
	91	1·2103	**99**	0	1·6642		16	1·2154		33	·3204
	96	1·4241		4	2·0348		21	1·2150		38	·3200
				9	2·1086		26	1·2139		43	·3189
97	0	1·9475		14	2·1033		31	1·2090		48	·3191
	2	2·2787		19	2·0988		36	1·2081		53	·3184
	7	2·5115		24	2·1034		41	1·2018		58	·3158
	12	2·5208		29	2·0853		46	1·2005		63	·3112
	17	2·5102		34	2·0839		51	1·2006		68	·3086
	22	2·5125		39	2·0730		56	1·1908		73	·2983
	27	2·4973		44	2·0637		61	1·1603		78	·2884
	32	2·4882		49	2·0679		66	1·1477		83	·2748
	37	2·4784		54	2·0497		71	1·1127		88	·2525
	42	2·4584		59	1·9889		76	1·0388		93	·2397
	47	2·4612		64	1·9490		81	·9840		98	·2543
	52	2·4457		69	1·8981		86	·8792		103	·1079
	57	2·3842		74	1·7291		91	·7529			

Annuities on 2 Joint Lives (Carlisle), 4, 5, and 6 per Cent.

Ages.		4 per Cent.	5 per Cent.	6 per Cent.	Ages.		4 per Cent.	5 per Cent.	6 per Cent.
0	0	8·8957	7·7035	6·7829	15	10	16·6436	14·4979	12·8001
						15	16·2716	14·2139	12·5775
1	0	10·2958	8·9044	7·8294					
	1	11·9231	10·2989	9·0434	16	0	11·8822	10·3795	9·1742
						5	16·4141	14·2775	12·5910
2	0	11·0182	9·5229	8·3668		10	16·5678	14·4288	12·7579
	2	13·6696	11·7920	10·3405		15	16·2022	14·1621	12·5378
						16	16·1340	14·1111	12·4987
3	0	11·6360	10·0557	8·8327					
	3	15·2589	13·1617	11·5357	17	0	11·8540	10·3402	9·1455
						5	16·3390	14·2237	12·5515
4	0	11·9650	10·3417	9·0843		10	16·4959	14·3901	12·7193
	4	16·1457	13·9314	12·2114		15	16·1366	14·1141	12·5018
						17	16·0067	14·0175	12·4282
5	0	12·2016	10·5504	9·2698					
	5	16·7993	14·5059	12·7209	18	0	11·7982	10·3003	9·1165
						5	16·2625	14·1691	12·5114
6	0	12·3113	10·6507	9·3614		10	16·4227	14·3373	12·6803
	3	16·1548	14·6463	12·2337		15	16·0697	14·0652	12·4653
	6	17·1104	14·7884	12·9774		18	15·8796	13·9240	12·3580
7	0	12·3554	10·6953	9·4048					
	4	16·6808	14·7089	12·6469	19	0	11·7392	10·2582	9·0857
	7	17·2401	14·9164	13·1003		5	16·1820	14·1112	12·4688
						10	16·3453	14·2812	12·6463
8	0	12·3560	10·7029	9·4162		15	16·0001	14·0132	12·4263
	5	17·0196	14·7201	12·9246		19	15·7472	13·8260	12·2838
	8	17·2493	14·9414	13·1339					
9	0	12·3274	10·6856	9·4059	20	0	11·6771	10·2137	9·0528
	5	16·9815	14·6966	12·9104		5	16·0971	14·0498	12·4233
	9	17·1777	14·8969	13·1069		10	16·2635	14·2216	12·5942
						15	15·9233	13·9576	12·3845
10	0	12·2773	10·6498	9·3796		20	15·6092	13·7230	12·2054
	5	16·9137	14·6477	12·8739					
	10	17·0478	14·8017	13·0356	21	0	11·6120	10·1666	9·0179
						5	16·0076	13·9848	12·3748
11	0	12·2163	10·6047	9·3451		10	16·1770	14·1582	12·5466
	5	16·8381	14·5858	12·8264		15	15·8434	13·8985	12·3396
	7	17·0575	14·7950	13·0143		20	15·5364	13·6684	12·1635
	11	16·8900	14·6826	12·9427		21	15·4652	13·6145	12·1223
12	0	12·1559	10·5602	9·3113	22	0	11·5415	10·1149	8·9791
	5	16·7486	14·5248	12·7796		5	15·9105	13·9133	12·3209
	7	16·9758	14·7340	12·9898		10	16·0827	14·0883	12·4935
	12	16·7362	14·5664	12·8525		15	15·7558	13·8328	12·2893
						20	15·4562	13·6075	12·1155
13	0	12·0940	10·5146	9·2765		22	15·3096	13·4962	12·0306
	5	16·6647	14·4624	12·7024					
	8	16·9010	14·6865	12·9419	23	0	11·4673	10·0626	8·9377
	13	16·5810	14·4489	12·7608		5	15·8082	13·8375	12·2632
						10	15·9831	14·0140	12·4366
14	0	12·0307	10·4679	9·2408		15	15·6629	13·7628	12·2353
	5	16·5786	14·3983	12·6825		20	15·3706	13·5423	12·0655
	9	16·7856	14·6038	12·8813		23	15·1471	13·3713	11·9321
	14	16·4243	14·3298	12·6678					
15	0	11·9679	10·4216	9·2056	24	0	11·3892	10·0022	8·8935
	5	16·4932	14·3350	12·6341					

Annuities on 2 Joint Lives (Carlisle), 4, 5, and 6 per Cent.

Ages.		4 per Cent.	5 per Cent.	6 per Cent.	Ages.		4 per Cent.	5 per Cent.	6 per Cent.
24	5	15·7004	13·7564	12·2016	**31**	10	15·0853	13·3373	11·9148
	10	15·8779	13·9349	12·3757		15	14·8178	13·1213	11·7375
	15	15·5644	13·6882	12·1774		20	14·5840	12·9393	11·5935
	20	15·2796	13·4724	12·0102		25	14·2549	12·6790	11·3840
	24	14·9772	13·2398	11·8281		30	13·8558	12·3623	11·1282
						31	13·7844	12·3072	11·0853
25	0	11·3071	9·9407	8·8462					
	5	15·5868	13·6717	12·1358	**32**	0	10·7245	9·5058	8·5141
	10	15·7667	13·8508	12·3105		5	14·7801	13·0678	11·6737
	15	15·4601	13·6086	12·1153		10	14·9741	13·2547	11·8524
	20	15·1827	13·3977	11·9518		15	14·7127	13·0429	11·6780
	25	14·7997	13·1011	11·7176		20	14·4859	12·8656	11·5373
						25	14·1655	12·6112	11·3330
26	0	11·2226	9·8773	8·7973		30	13·7768	12·3016	11·0810
	5	15·4699	13·5835	12·0677		32	13·6326	12·1904	10·9940
	10	15·6521	13·7639	12·2429					
	15	15·3523	13·5262	12·0535	**33**	0	10·6373	9·4407	8·4646
	20	15·0824	13·3202	11·8906		5	14·6587	12·9769	11·6046
	25	14·7085	13·0297	11·6605		10	14·8543	13·1648	11·7838
	26	14·6193	12·9596	11·6044		15	14·5992	12·9573	11·6123
						20	14·3793	12·7848	11·4749
27	0	11·1336	9·8098	8·7449		25	14·0678	12·5364	11·2737
	5	15·3469	13·4900	11·9948		30	13·6895	12·2341	11·0278
	10	15·4954	13·6714	12·1706		33	13·4695	12·0466	10·8934
	15	15·2381	13·4383	11·9815					
	20	14·9757	13·2372	11·8247	**34**	0	10·5438	9·3702	8·4104
	25	14·6110	12·9530	11·5988		5	14·5284	12·8784	11·5287
	27	14·4306	12·8104	11·4839		10	14·7255	13·0671	11·7083
						15	14·4765	12·8640	11·5399
28	0	11·0439	9·7418	8·6920		20	14·2637	12·6962	11·4058
	5	15·2228	13·3957	11·9214		25	13·9611	12·4540	11·2064
	10	15·4091	13·5781	12·0976		30	13·5935	12·1590	10·9684
	15	15·1228	13·3495	11·9116		34	13·2942	11·9250	10·7827
	20	14·8678	13·1534	11·7581					
	25	14·5124	12·8753	11·5371	**35**	0	10·4448	9·2955	8·3527
	28	14·2438	12·6623	11·3643		5	14·3916	12·7742	11·4480
						10	14·5899	12·9636	11·6279
29	0	10·9597	9·6786	8·6435		15	14·3472	12·7645	11·4626
	5	15·1064	13·3082	11·8542		20	14·1413	12·6018	11·3318
	10	15·2946	13·4917	12·0309		25	13·8477	12·3659	11·1394
	15	15·0113	13·2675	11·8479		30	13·4909	12·0781	10·9041
	20	14·7670	13·0762	11·6975		35	13·1111	11·7794	10·6653
	25	14·4202	12·8041	11·4802					
	29	14·0747	12·5298	11·2585	**36**	0	10·3427	9·2167	8·2912
						5	14·2478	12·6640	11·3619
30	0	10·8835	9·6228	8·6017		10	14·4473	12·8539	11·5420
	5	15·0009	13·2307	11·7961		15	14·2108	12·6595	11·3799
	10	15·2261	13·4216	11·9735		20	14·0117	12·5013	11·2525
	15	14·9175	13·1953	11·7933		25	13·7272	12·2716	11·0646
	20	14·7106	13·0087	11·6462		30	13·3811	11·9918	10·8347
	25	14·3389	12·7424	11·4327		35	13·0139	11·7017	10·6023
	30	13·9296	12·4187	11·1721		36	12·9196	11·6261	10·5408
31	0	10·8058	9·5658	8·5591	**37**	0	10·2365	9·1350	8·2273
	5	14·8931	13·1514	11·7367		5	14·0996	12·5498	11·2725

Annuities on 2 Joint Lives (Carlisle), 4, 5, and 6 per Cent.

Ages.		4 per Cent.	5 per Cent.	6 per Cent.	Ages.		4 per Cent.	5 per Cent.	6 per Cent.
37	10	14·3001	12·7402	11·4527	42	30	12·6594	11·4217	10·3784
	15	14·0698	12·5502	11·2938		35	12·3668	11·1852	10·1849
	20	13·8775	12·3967	11·1698		40	11·9421	10·8373	9·8964
	25	13·6019	12·1734	10·9863		42	11·7720	10·7008	9·7858
	30	13·2666	11·9012	10·7619					
	35	12·9120	11·6201	10·5361	43	0	9·5798	8·6277	7·8299
	37	12·7245	11·4691	10·4129		5	13·1821	11·8407	10·7170
						10	13·3869	12·0332	10·8979
38	0	10·1270	9·0503	8·1607		15	13·1922	11·8691	10·7582
	5	13·9468	12·4315	11·1794		20	13·0375	11·7428	10·6539
	10	14·1481	12·6223	11·3598		25	12·8122	11·5556	10·4968
	15	13·9239	12·4367	11·2041		30	12·5392	11·3281	10·3048
	20	13·7383	12·2880	11·0835		35	12·2585	11·1003	10·1177
	25	13·4716	12·0713	10·9046		40	11·8489	10·7636	9·8376
	30	13·1470	11·8064	10·6856		43	11·6026	10·5659	9·6777
	35	12·8346	11·5343	10·4663					
	38	12·5256	11·3084	10·2812	44	0	9·4678	8·5412	7·7626
						5	13·0249	11·7191	10·6221
39	0	10·0140	8·9625	8·0914		10	13·2303	11·9118	10·8031
	5	13·7892	12·3089	11·0826		15	13·0227	11·7521	10·6667
	10	13·9911	12·5000	11·2630		20	12·8925	11·6301	10·5656
	15	13·7730	12·3188	11·1106		25	12·6749	11·4487	10·4128
	20	13·5940	12·1748	10·9933		30	12·4118	11·2309	10·2262
	25	13·3360	11·9640	10·8189		35	12·1430	11·0093	10·0456
	30	13·0823	11·7071	10·6055		40	11·7487	10·6837	9·7739
	35	12·6929	11·4441	10·3927		44	11·4264	10·4250	9·5642
	39	12·3225	11·1435	10·1456					
					45	0	9·3508	8·4502	7·6912
40	0	9·9012	8·8750	8·0224		5	12·8604	11·5911	10·5217
	5	13·6319	12·1869	10·9863		10	13·0660	11·7839	10·7026
	10	13·8347	12·3783	11·1668		15	12·8829	11·6554	10·5695
	15	13·6227	12·2015	11·0176		20	12·7400	11·5109	10·4718
	20	13·4499	12·0620	10·9037		25	12·5302	11·3352	10·3232
	25	13·2005	11·8574	10·7337		30	12·2767	11·1221	10·1420
	30	12·8973	11·6080	10·5258		35	12·0199	10·9119	9·9679
	35	12·5804	11·3539	10·3196		40	11·6410	10·5980	9·7049
	40	12·1253	10·9836	10·0144		45	11·2432	10·2775	9·4449
41	0	9·7936	8·7920	7·9576	46	0	9·2264	8·3526	7·6140
	5	13·4814	12·0708	10·8957		5	12·6853	11·4535	10·4126
	10	13·6849	12·2626	11·0763		10	12·8909	11·6462	10·5934
	15	13·4787	12·0900	10·9303		15	12·7137	11·4954	10·4638
	20	13·3121	11·9550	10·8196		20	12·5767	11·3821	10·3694
	25	13·0709	11·7563	10·6540		25	12·3745	11·2122	10·2252
	30	12·7779	11·5143	10·4514		30	12·1307	11·0826	10·0494
	35	12·4733	11·2690	10·2516		35	11·8858	10·8049	9·8820
	40	12·0334	10·9112	9·9548		40	11·5224	10·5027	9·6278
	41	11·9448	10·8387	9·8969		45	11·1430	10·1963	9·3786
						46	11·0470	10·1182	9·3148
42	0	9·6870	8·7101	7·8939					
	5	13·3323	11·9562	10·8066	47	0	9·0942	8·2479	7·5304
	10	13·5365	12·1483	10·9874		5	12·4987	11·3056	10·2944
	15	13·3361	11·9800	10·8445		10	12·7041	11·4980	10·4748
	20	13·1755	11·8493	10·7370		15	12·5329	11·3517	10·3487
	25	12·9423	11·6565	10·5756		20	12·4018	11·2430	10·2578

Annuities on 2 Joint Lives (Carlisle), 4, 5, and 6 per Cent.

Ages.		4 per Cent.	5 per Cent.	6 per Cent.	Ages.		4 per Cent.	5 per Cent.	6 per Cent.
47	25	12·2073	11·0788	10·1180	52	0	8·2511	7·5551	6·9558
	30	11·9731	10·8802	9·9478		5	11·3078	10·3261	9·4817
	35	11·7402	10·6878	9·7871		10	11·5063	10·5118	9·6558
	40	11·3923	10·3973	9·5419		15	11·3664	10·3902	9·5493
	45	11·0315	10·1051	9·3037		20	11·2653	10·3050	9·4768
	47	10·8371	9·9461	9·1729		25	11·1099	10·1714	9·3612
						30	10·9227	10·0094	9·2197
48	0	8·9515	8·1336	7·4381		35	10·7480	9·8616	9·0936
	5	12·2914	11·1439	10·1636		40	10·4797	9·6326	8·8964
	10	12·5020	11·3357	10·3435		45	10·2139	9·4143	8·7159
	15	12·3368	11·1941	10·2210		50	9·7347	9·0104	8·3738
	20	12·2117	11·0900	10·1336		52	9·4348	8·7506	8·1472
	25	12·0249	10·9318	9·9985					
	30	11·8603	10·7404	9·8338	53	0	8·0597	7·3941	6·8194
	35	11·5792	10·5569	9·6800		5	11·0370	10·0985	9·2887
	40	11·2471	10·2784	9·4440		10	11·2331	10·2819	9·4607
	45	10·9051	10·0008	9·2169		15	11·0995	10·1654	9·3583
	48	10·6071	9·7552	9·0136		20	11·0041	10·0847	9·2895
						25	10·8563	9·9572	9·1789
49	0	8·7933	8·0050	7·3326		30	10·6782	9·8023	9·0430
	5	12·0736	10·9620	10·0143		35	10·5138	9·6627	8·9235
	10	12·2774	11·1528	10·1932		40	10·2608	9·4458	8·7358
	15	12·1185	11·0161	10·0745		45	10·0133	9·2419	8·5667
	20	11·9994	10·9166	9·9909		50	9·5599	8·8589	8·2416
	25	11·8205	10·7645	9·8582		53	9·1174	8·4739	7·9047
	30	11·6055	10·5805	9·7015					
	35	11·3962	10·4061	9·5546	54	0	7·8639	7·2285	6·6783
	40	11·0802	10·1399	9·3282		5	10·7601	9·8643	9·0890
	45	10·7573	9·8770	9·1127		10	10·9535	10·0453	9·2588
	49	10·3454	9·5346	8·8264		15	10·8261	9·9338	9·1605
						20	10·7363	9·8575	9·0953
50	0	8·6227	7·8647	7·2163		25	10·5959	9·7361	8·9896
	5	11·8325	10·7637	9·8497		30	10·4264	9·5880	8·8593
	10	12·0350	10·9531	10·0273		35	10·2721	9·4565	8·7462
	15	11·8824	10·8214	9·9126		40	10·0339	9·2512	8·5678
	20	11·7693	10·7267	9·8327		45	9·8042	9·0614	8·4100
	25	11·5982	10·5807	9·7071		50	9·3981	8·6992	8·1017
	30	11·3928	10·4041	9·5540		54	8·7960	8·1921	7·6563
	35	11·1952	10·2387	9·4141					
	40	10·8953	9·9849	9·1973	55	0	7·6615	7·0561	6·5304
	45	10·5916	9·7369	8·9935		5	10·4739	9·6206	8·8799
	50	10·0598	9·2910	8·6173		10	10·6642	9·7988	9·0492
						15	10·5430	9·6923	8·9529
51	0	8·4388	7·7119	7·0881		20	10·4586	9·6204	8·8912
	5	11·5728	10·5478	9·6686		25	10·3256	9·5050	8·7905
	10	11·7734	10·7354	9·8445		30	10·1644	9·3637	8·6656
	15	11·6272	10·6088	9·7339		35	10·0199	9·2398	8·5588
	20	11·5203	10·5188	9·6577		40	9·7959	9·0460	8·3896
	25	11·3571	10·3791	9·5372		45	9·5837	8·8700	8·2428
	30	11·1610	10·2099	9·3899		50	9·1812	8·5284	7·9514
	35	10·9750	10·0534	9·2570		55	8·4649	7·8999	7·3970
	40	10·6911	9·8122	9·0500					
	45	10·4065	9·5791	8·8580	56	0	7·4538	6·8781	6·3766
	50	9·9011	9·1543	8·4988		5	10·1805	9·3692	8·6628
	51	9·7485	9·0227	8·3845		10	10·3675	9·5443	8·8272

Annuities on 2 Joint Lives (Carlisle), 4, 5, and 6 per Cent.

Ages.		4 per Cent.	5 per Cent.	6 per Cent.	Ages.		4 per Cent.	5 per Cent.	6 per Cent.
56	15	10·2523	9·4428	8·7371	60	10	9·1964	8·5295	7·9417
	20	10·1732	9·3751	8·6789		15	9·1033	8·4464	7·8669
	25	10·0474	9·2656	8·5830		20	9·0432	8·3943	7·8216
	30	9·8944	9·1309	8·4637		25	8·9433	8·3063	7·7436
	35	9·7590	9·0145	8·3628		30	8·8198	8·1960	7·6446
	40	9·5487	8·8317	8·2025		35	8·7159	8·1051	7·5647
	45	9·3534	8·6692	8·0666		40	8·5530	7·9608	7·4360
	50	8·9758	8·3479	7·7918		45	8·4173	7·8464	7·3391
	55	8·2928	7·7472	7·2608		50	8·1320	7·6011	7·1272
	56	8·1278	7·6004	7·1297		55	7·5742	7·1056	6·6852
						60	6·8538	6·4564	6·0975
57	0	7·2402	6·6938	6·2163					
	5	9·8795	9·1096	8·4373	61	0	6·4653	6·0222	5·6302
	10	10·0627	9·2812	8·5985		5	8·7892	8·1655	7·6142
	15	9·9535	9·1847	8·5125		10	8·9583	8·3242	7·7636
	20	9·8795	9·1212	8·4577		15	8·8697	8·2448	7·6921
	25	9·7607	9·0174	8·3666		20	8·8137	8·1962	7·6495
	30	9·6157	8·8893	8·2527		25	8·7191	8·1126	7·5753
	35	9·4890	8·7799	8·1575		30	8·6016	8·0073	7·4805
	40	9·2919	8·6077	8·0059		35	8·5041	7·9216	7·4048
	45	9·1129	8·4583	7·8805		40	8·3504	7·7849	7·2824
	50	8·7598	8·1570	7·6223		45	8·2269	7·6804	7·1936
	55	8·1098	7·5840	7·1146		50	7·9616	7·4517	6·9956
	57	7·7835	7·2926	6·8530		55	7·4306	6·9789	6·5727
						60	6·7394	6·3545	6·0063
58	0	7·0262	6·5082	6·0541		61	6·6304	6·2572	5·9190
	5	9·5784	8·8487	8·2095					
	10	9·7578	9·0168	8·3675	62	0	6·3013	5·8805	5·5072
	15	9·6543	8·9250	8·2855		5	8·5571	7·9651	7·4402
	20	9·5852	8·8655	8·2340		10	8·7231	8·1211	7·5873
	25	9·4731	8·7673	8·1476		15	8·6388	8·0453	7·5188
	30	9·3358	8·6456	8·0389		20	8·5868	7·9999	7·4790
	35	9·2173	8·5428	7·9492		25	8·4974	7·9206	7·4084
	40	9·0326	8·3807	7·8059		30	8·3858	7·8204	7·3178
	45	8·8691	8·2438	7·6906		35	8·2943	7·7397	7·2463
	50	8·5398	7·9621	7·4485		40	8·1493	7·6101	7·1298
	55	7·9221	7·4162	6·9638		45	8·0372	7·5150	7·0486
	58	7·4441	6·9875	6·5776		50	7·7914	7·3025	6·8642
						55	7·2870	6·8521	6·4604
59	0	6·8216	6·3305	5·8986		60	6·6247	6·2525	5·9152
	5	9·2911	8·5993	7·9916		62	6·4170	6·0667	5·7485
	10	9·4666	8·7640	8·1464					
	15	9·3686	8·6766	8·0682	63	0	6·1344	5·7359	5·3811
	20	9·3041	8·6210	8·0199		5	8·3206	7·7600	7·2616
	25	9·1983	8·5281	7·9378		10	8·4834	7·9132	7·4061
	30	9·0682	8·4123	7·8341		15	8·4033	7·8410	7·3405
	35	8·9573	8·3157	7·7495		20	8·3551	7·7988	7·3034
	40	8·7840	8·1629	7·6138		25	8·2710	7·7239	7·2366
	45	8·6350	8·0377	7·5081		30	8·1650	7·6284	7·1502
	50	8·3283	7·7746	7·2815		35	8·0794	7·5526	7·0826
	55	7·7414	7·2547	6·8187		40	7·9427	7·4299	6·9719
	59	7·1307	6·7055	6·3224		45	7·8414	7·3437	6·8980
						50	7·6146	7·1471	6·7270
60	0	6·6318	6·1657	5·7547		55	7·1369	6·7194	6·3427
	5	9·0243	8·3681	7·7898		60	6·5038	6·1448	5·8189

Annuities on 2 Joint Lives (Carlisle), 4, 5, and 6 per Cent.

Ages.		4 per Cent.	5 per Cent.	6 per Cent.
63	63	6·2024	5·8748	5·5762
64	0	5·9584	5·5821	5·2461
	5	8·0711	7·5422	7·0705
	10	8·2304	7·6923	7·2121
	15	8·1546	7·6236	7·1497
	20	8·1101	7·5845	7·1152
	25	8·0311	7·5141	7·0521
	30	7·9309	7·4234	6·9697
	35	7·8510	7·3525	6·9065
	40	7·7225	7·2366	6·8013
	45	7·6313	7·1587	6·7345
	50	7·4232	6·9779	6·5768
	55	6·9727	6·5735	6·2124
	60	6·3696	6·0246	5·7109
	64	5·9738	5·6690	5·3902
65	0	5·7768	5·4225	5·1053
	5	7·8135	7·3160	6·8709
	10	7·9689	7·4626	7·0094
	15	7·8973	7·3974	6·9500
	20	7·8564	7·3614	6·9181
	25	7·7826	7·2954	6·8589
	30	7·6879	7·2095	6·7806
	35	7·6137	7·1434	6·7214
	40	7·4929	7·0340	6·6218
	45	7·4113	6·9640	6·5615
	50	7·2212	6·7985	6·4168
	55	6·7981	6·4176	6·0728
	60	6·2251	5·8949	5·5941
	65	5·7381	5·4557	5·1968
66	0	5·5869	5·2546	4·9562
	5	7·5443	7·0780	6·6597
	10	7·6955	7·2208	6·7947
	15	7·6280	7·1592	6·7384
	20	7·5905	7·1261	6·7090
	25	7·5219	7·0645	6·6843
	30	7·4328	6·9834	6·5794
	35	7·3640	6·9220	6·5243
	40	7·2508	6·8190	6·4302
	45	7·1781	6·7564	6·3760
	50	7·0054	6·6057	6·2440
	55	6·6097	6·2486	5·9206
	60	6·0674	5·7525	5·4652
	65	5·6105	5·3397	5·0910
	66	5·4900	5·2299	4·9907
67	0	5·3880	5·0776	4·7979
	5	7·2625	6·8272	6·4355
	10	7·4091	6·9642	6·5668
	15	7·3457	6·9078	6·5135
	20	7·3115	6·8775	6·4865
	25	7·2480	6·8204	6·4349
	30	7·1644	6·7440	6·3650
67	35	7·1009	6·6871	6·3138
	40	6·9951	6·5905	6·2252
	45	6·9306	6·5347	6·1767
	50	6·7746	6·3982	6·0569
	55	6·4063	6·0650	5·7544
	60	5·8950	5·5961	5·3228
	65	5·4684	5·2099	4·9721
	67	5·2277	4·9897	4·7702
68	0	5·1815	4·8924	4·6313
	5	6·9702	6·5654	6·2000
	10	7·1118	6·6993	6·3270
	15	7·0524	6·6449	6·2769
	20	7·0214	6·6172	6·2522
	25	6·9628	6·5644	6·2044
	30	6·8846	6·4928	6·1386
	35	6·8263	6·4404	6·0913
	40	6·7276	6·3500	6·0081
	45	6·6707	6·3005	5·9649
	50	6·5304	6·1775	5·8568
	55	6·1890	5·8678	5·5749
	60	5·7089	5·4264	5·1677
	65	5·3124	5·0667	4·8403
	68	4·9536	4·7372	4·5371
69	0	4·9665	4·6984	4·4555
	5	6·6666	6·2915	5·9521
	10	6·8027	6·4204	6·0745
	15	6·7474	6·3695	6·0275
	20	6·7192	6·3444	6·0050
	25	6·6655	6·2959	5·9609
	30	6·5926	6·2289	5·8992
	35	6·5392	6·1808	5·8557
	40	6·4475	6·0964	5·7777
	45	6·3974	6·0527	5·7394
	50	6·2720	5·9426	5·6424
	55	5·9568	5·6560	5·3810
	60	5·5079	5·2421	4·9983
	65	5·1412	4·9087	4·6942
	69	4·6659	4·4705	4·2893
70	0	4·7442	4·4964	4·2713
	5	6·3538	6·0076	5·6934
	10	6·4840	6·1312	5·8108
	15	6·4327	6·0837	5·7669
	20	6·4073	6·0610	5·7465
	25	6·3582	6·0164	5·7060
	30	6·2906	5·9542	5·6484
	35	6·2417	5·9101	5·6085
	40	6·1566	5·8315	5·5357
	45	6·1128	5·7931	5·5019
	50	6·0014	5·6950	5·4153
	55	5·7114	5·4307	5·1737
	60	5·2934	5·0444	4·8155
	65	4·9555	4·7365	4·5342
	70	4·3667	4·1914	4·0284

FORMULÆ FOR THE VALUATION OF REVERSIONS;

v being the **present value of £1** due one year hence at the rate of interest the purchaser wishes to make of his money;

d the **annual interest** on v, or the discount on £1 for one year, $= 1 - v$;

a the **present value of an annuity** to continue until the reversion falls in (at 3 per cent., or any other rate at which such annuity can be purchased);

π the **annual premium** charged by any respectable Office for the assurance of £1 on an adverse contingency, if such a one be involved.

The **present value** of the **reversion to £1** at the end of the year in which an assigned event (such as the death of a person aged x) may occur, is $v - d.a$

This may be readily ascertained without labour by the use of the Conversion Tables from p. 96. Thus, if it be required to ascertain the present value of £1 due at any future time, allowing the purchaser 8 per cent. for his money, and to secure himself by an annuity of the interest, ascertain for what sum an annuity for the period may be purchased; then turn to the 8 per Cent. Conversion Table, find in the first column the number of years' purchase of such annuity, and on that line and in the column headed by the first decimal figure in the annuity will be found the value of the reversion. If greater accuracy be required, the correction for the second and third decimals is given in the supplementary Table; and the same Table may be applied for the fourth and fifth by removing the figures two places to the right. These Tables will be readily understood and applied by those used to logarithmic calculations.

A table of the values of reversions, calculated on the Carlisle basis, is given at p. 93.

The **present value** of the **reversion to a perpetuity** after the failure of a lifeholder aged x, is . . . . . $\frac{1 - r'a_x}{r}$ when the purchaser secures himself by life assurance; r being the interest of £1 for one year at the rate of interest required in perpetuity, r' the interest of £1 for one year at the current rate (say 3 per cent.) or at the rate the purchaser will have until he comes into possession, and a_x the price at which an annuity on the life can be purchased.

This Rule may be expressed thus:—From the value of a perpetuity at the rate required, deduct the cost of an annuity (on the life in question) of the interest on such value at the rate secured to the purchaser during the continuance of the life; and the application of the Rule to the purchase of advowsons is becoming very necessary, the purchaser frequently requiring interest at 3 per cent. on his outlay during the life of the present incumbent, and 5 or even 6 per cent. afterwards; and, in some instances inverting the case, requiring a larger interest now and being satisfied with a smaller hereafter.

The **present value** of a **reversion to £1** in favour of a person aged x, contingent on his surviving another aged y (interest and the restoration of the purchase-money, in the event of x dying first, being secured by assurance) (π being the annual premium charged for assuring x against y), is . . . . . $1 - (d + \pi)(1 + a_{xy})$

Rule.—To the annual premium required by an Office to secure £1 on x if he predecease y, add the discount on £1 for one year at the rate of interest

required. Multiply this sum by one more than the value of, or price that must be given for, an annuity on the joint continuance of the two lives, and deduct the product from 1.

The **present value** of the **reversion to an annuity** for one life x after another life y (as of the next presentation to a living), allowing the purchaser to secure himself against loss by the purchase of an annuity equal to the interest on the cost during the life of the present incumbent, and by an assurance on the life of the person nominated to the living, is . . . . . $\left(\frac{1}{\pi+d}-1\right) \times (\dot{v}-\dot{d}a_y)$

(π being the annual premium required to assure £1 on a life aged 24, d the discount on £1 for a year at the rate of interest required during the life of the nominee x, and $\dot{v}-\dot{d}a_y$ the present value of the reversion to £1 on the death of the present incumbent y, as given in Table at p. 93).

If the rate of interest required during the life of the next incumbent

be 3,	. . .	$\frac{1}{\pi+d}-1=19{\cdot}3558$;
if 4,	. . .	$=16{\cdot}1053$;
5,	. . .	$=13{\cdot}7887$;
6,	. . .	$=12{\cdot}0548$;

and the value of the next presentation may be found by multiplying the tabular value of the reversion on the life of the present incumbent, given in p. 93, by one of the above.

The annuity to be purchased for the present incumbent's life is . $\left(\frac{1}{\pi+d}-1\right)\dot{d}a_y$

and the total present outlay . . . . . $\left(\frac{1}{\pi+d}-1\right)\dot{v}$

Table of $\dot{v}-\dot{d}a_x$

The Value of a Reversion to £1 after a Life aged x, allowing Interest at the rate r (or at 4, 5, 6, 7, 8, or 10 per Cent.), and the security of an Annuity on the Life at the rate of 3 per Cent. (Carlisle Base).

Age.	4 per Cent.	5 per Cent.	6 per Cent.	7 per Cent.
0	·295391	The reversion cannot be purchased to pay 5 per cent. at any age under 28.	The reversion cannot be purchased to pay 6 per cent. at any age under 42.	
1	·189065			
2	·134597			
3	·089117			
4	·065966			
5	·050282			
6	·044394			
7	·043594			
8	·046127			
9	·050882			
10	·057222			
11	·064364			
12	·071435			
13	·078584			
14	·085821			
15	·093000			
16	·099833			
17	·106450			
18	·113126			
19	·120009			
20	·127104			
21	·134421			
22	·142111			
23	·150045			
24	·158232			
25	·166684			
26	·175268			
27	·184129			
28	·193000	·000858		
29	·201459	·011331		
30	·209348	·021098		
31	·217337	·030989		
32	·225568	·041181		
33	·234193	·051859		
34	·243228	·063044		
35	·252551	·074588		
36	·262175	·086503		
37	·271973	·098634		
38	·281953	·110990		
39	·292123	·123581		
40	·302214	·136075		
41	·311948	·148127		
42	·321576	·160048	·001566	
43	·331227	·171996	·015769	
44	·341172	·184150	·030216	
45	·351425	·197004	·045495	
46	·362138	·210266	·061260	
47	·373332	·224126	·077735	
48	·385169	·238781	·095155	
49	·397950	·254606	·113965	
50	·411451	·271321	·133834	
51	·425703	·289067	·154809	·023160

Annuities on 2 Joint Lives (Carlisle), 4, 5, and 6 per Cent.

Ages.		4 per Cent.	5 per Cent.	6 per Cent.	Ages.		4 per Cent.	5 per Cent.	6 per Cent.
47	25	12·2073	11·0788	10·1180	52	0	8·2511	7·5551	6·9558
	30	11·9731	10·8802	9·9478		5	11·3078	10·3261	9·4817
	35	11·7402	10·6878	9·7871		10	11·5063	10·5118	9·6558
	40	11·3923	10·3973	9·5419		15	11·3664	10·3902	9·5493
	45	11·0315	10·1051	9·3037		20	11·2653	10·3050	9·4768
	47	10·8371	9·9461	9·1729		25	11·1099	10·1714	9·3612
						30	10·9227	10·0094	9·2197
48	0	8·9515	8·1336	7·4381		35	10·7480	9·8616	9·0936
	5	12·2914	11·1439	10·1636		40	10·4797	9·6326	8·8964
	10	12·5020	11·3357	10·3435		45	10·2139	9·4143	8·7159
	15	12·3368	11·1941	10·2210		50	9·7347	9·0104	8·3738
	20	12·2117	11·0900	10·1336		52	9·4348	8·7506	8·1472
	25	12·0249	10·9318	9·9985					
	30	11·8003	10·7404	9·8338	53	0	8·0597	7·3941	6·8194
	35	11·5792	10·5569	9·6800		5	11·0370	10·0985	9·2887
	40	11·2471	10·2784	9·4440		10	11·2331	10·2819	9·4607
	45	10·9051	10·0008	9·2169		15	11·0995	10·1654	9·3583
	48	10·6071	9·7552	9·0136		20	11·0041	10·0847	9·2895
						25	10·8563	9·9572	9·1789
49	0	8·7933	8·0050	7·3326		30	10·6782	9·8023	9·0430
	5	12·0736	10·9620	10·0143		35	10·5138	9·6627	8·9235
	10	12·2774	11·1528	10·1932		40	10·2608	9·4458	8·7358
	15	12·1185	11·0161	10·0745		45	10·0133	9·2419	8·5667
	20	11·9994	10·9166	9·9909		50	9·5599	8·8589	8·2416
	25	11·8205	10·7645	9·8582		53	9·1174	8·4739	7·9047
	30	11·6055	10·5805	9·7015					
	35	11·3962	10·4061	9·5546	54	0	7·8639	7·2285	6·6783
	40	11·0802	10·1399	9·3282		5	10·7601	9·8643	9·0890
	45	10·7573	9·8770	9·1127		10	10·9535	10·0453	9·2588
	49	10·3454	9·5346	8·8264		15	10·8261	9·9338	9·1605
						20	10·7363	9·8575	9·0953
50	0	8·6227	7·8647	7·2163		25	10·5959	9·7361	8·9896
	5	11·8325	10·7637	9·8497		30	10·4264	9·5880	8·8593
	10	12·0350	10·9531	10·0273		35	10·2721	9·4565	8·7462
	15	11·8824	10·8214	9·9126		40	10·0339	9·2512	8·5678
	20	11·7693	10·7267	9·8327		45	9·8042	9·0614	8·4100
	25	11·5982	10·5807	9·7071		50	9·3981	8·6992	8·1017
	30	11·3928	10·4041	9·5540		54	8·7960	8·1921	7·6563
	35	11·1952	10·2387	9·4141					
	40	10·8953	9·9849	9·1973	55	0	7·6615	7·0561	6·5304
	45	10·5916	9·7369	8·9935		5	10·4739	9·6206	8·8799
	50	10·0598	9·2910	8·6173		10	10·6642	9·7988	9·0492
						15	10·5430	9·6923	8·9529
51	0	8·4388	7·7119	7·0881		20	10·4586	9·6204	8·8912
	5	11·5728	10·5478	9·6686		25	10·3256	9·5050	8·7905
	10	11·7734	10·7354	9·8445		30	10·1644	9·3637	8·6656
	15	11·6272	10·6088	9·7339		35	10·0199	9·2398	8·5588
	20	11·5203	10·5188	9·6577		40	9·7959	9·0460	8·3896
	25	11·3571	10·3791	9·5372		45	9·5837	8·8700	8·2428
	30	11·1610	10·2099	9·3899		50	9·1812	8·5284	7·9514
	35	10·9750	10·0534	9·2570		55	8·4649	7·8999	7·3970
	40	10·6911	9·8122	9·0500					
	45	10·4065	9·5791	8·8580	56	0	7·4538	6·8781	6·3766
	50	9·9011	9·1543	8·4988		5	10·1805	9·3692	8·6628
	51	9·7485	9·0227	8·3845		10	10·3675	9·5443	8·8272

CONVERSION

OF

ASSURANCE TABLES,

AFFORDING, AT VARIOUS RATES,

A READY MODE OF DEDUCING

THE PRESENT VALUE OF £1 DUE AT THE END OF THE YEAR AFTER THE CESSATION OF ANY TERM, FROM THE KNOWN VALUE OF AN ANNUITY FOR THAT TERM, WHETHER A LIFE OR A DEFINITE NUMBER OF YEARS;

AND FOR ASCERTAINING

THE TRUE VALUE OF A REVERSION.

These Tables are formed on the relation of A, the present value of an assurance, to a, the present value of an annuity, which is variously expressed by $A = v - vra$,

$$= v - da,$$
$$= (p - a)d,$$

in which v is the **present worth** of £1 due one year hence,
r the **interest** of £1 for one year,
d the **discount** on £1 for one year, or $1 - v$,
p the **present worth** of a **perpetuity.**

When $a = 0$, A is $= v$; and, as a increases by unity, A decreases by d: or,
When $a = p$, $A = 0$; and, as a decreases by unity, A increases by d.

Examples, showing the mode of using these Tables.

It is required to ascertain the value of an assurance of £1 payable at the end of the year in which a male aged 36 shall die (on the basis of Dr. Farr's English Life Table, No. 2, and at 3 per cent.).

The value of an annuity (at 3 per cent.) on the life aged 36 is given as 17·740 years' purchase.

On line 17, and in column ·7, on page 96, is found the value, at 3 per cent., of an assurance of £1 after a life worth 17·7 years' purchase	=·455340
The proportional deduction for ·040 is found in the small Table of Proportional Parts as	1165
Subtracting which, the remainder is the value sought .	·454175

The value of £1 payable at the end of the year in which a male aged 36 shall die (using Dr. Farr's English Life Table, No. 2), allowing 5 per cent. interest and the security of assurance, is found thus:—

The value of the annuity being, at 3 per cent., 17·740, as above—

On line 17, in column 7, on page 98, is found the value, at 5 per cent., of a reversion to £1 after a life an annuity for which may be purchased at 17·7 years' purchase	=·109524
Deduct for correction (found as above)	1905
Value required . .	·107619

Conversion Table for deducing Assurances from Annuities.

3 per Cent.

Yrs.	·0.	·1.	·2.	·3.	·4.	·5.	·6.	·7.	·8.	·9.
0	·970874	·967961	·965049	·962136	·959223	·956311	·953398	·950485	·947573	·944660
1	·941748	·938835	·935922	·933010	·930097	·927184	·924272	·921359	·918447	·915534
2	·912621	·909709	·906796	·903883	·900971	·898058	·895146	·892233	·889320	·886408
3	·883495	·880583	·877670	·874757	·871845	·868932	·866019	·863107	·860194	·857282
4	·854369	·851456	·848544	·845631	·842718	·839806	·836893	·833981	·831068	·828155
5	·825243	·822330	·819417	·816505	·813592	·810680	·807767	·804854	·801942	·799029
6	·796117	·793204	·790291	·787379	·784466	·781553	·778641	·775728	·772816	·769903
7	·766990	·764078	·761165	·758252	·755340	·752427	·749515	·746602	·743689	·740777
8	·737864	·734951	·732039	·729126	·726214	·723301	·720388	·717476	·714563	·711650
9	·708738	·705825	·702913	·700000	·697087	·694175	·691262	·688350	·685437	·682524
10	·679612	·676699	·673786	·670874	·667961	·665049	·662136	·659223	·656311	·653398
11	·650485	·647573	·644660	·641748	·638835	·635922	·633010	·630097	·627184	·624272
12	·621359	·618447	·615534	·612621	·609709	·606796	·603883	·600971	·598058	·595146
13	·592233	·589320	·586408	·583495	·580583	·577670	·574757	·571845	·568932	·566019
14	·563107	·560194	·557282	·554369	·551456	·548544	·545631	·542718	·539806	·536893
15	·533981	·531068	·528155	·525243	·522330	·519417	·516505	·513592	·510680	·507767
16	·504854	·501942	·499029	·496117	·493204	·490291	·487379	·484466	·481553	·478641
17	·475728	·472816	·469903	·466990	·464078	·461165	·458252	·455340	·452427	·449515
18	·446602	·443689	·440777	·437864	·434951	·432039	·429126	·426214	·423301	·420388
19	·417476	·414563	·411650	·408738	·405825	·402913	·400000	·397087	·394175	·391262
20	·388350	·385437	·382524	·379612	·376699	·373786	·370874	·367961	·365049	·362136
21	·359223	·356311	·353398	·350485	·347573	·344660	·341748	·338835	·335922	·333010
22	·330097	·327184	·324272	·321359	·318447	·315534	·312621	·309709	·306796	·303883
23	·300971	·298058	·295146	·292233	·289320	·286408	·283495	·280583	·277670	·274757
24	·271845	·268932	·266019	·263107	·260194	·257282	·254369	·251456	·248544	·245631
25	·242718	·239806	·236893	·233981	·231068	·228155	·225243	·222330	·219417	·216505
26	·213592	·210680	·207767	·204854	·201942	·199029	·196117	·193204	·190291	·187379
27	·184466	·181553	·178641	·175728	·172816	·169903	·166990	·164078	·161165	·158252
28	·155340	·152427	·149515	·146602	·143689	·140777	·137864	·134951	·132039	·129126
29	·126214	·123301	·120388	·117476	·114563	·111650	·108738	·105825	·102913	·100000
30	·097087	·094175	·091262	·088350	·085437	·082524	·079612	·076699	·073786	·070874
31	·067961	·065049	·062136	·059223	·056311	·053398	·050485	·047573	·044660	·041748
32	·038835	·035922	·033010	·030097	·027184	·024272	·021359	·018447	·015534	·012621
33	·009709	·006796	·003883	·000971						

Proportional parts to be deducted for 2nd and 3rd decimal figures.

	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
0	0000	0029	0058	0087	0117	0146	0175	0204	0233	0262
1	0291	0320	0350	0379	0408	0437	0466	0495	0524	0553
2	0583	0612	0641	0670	0699	0728	0757	0786	0816	0845
3	0874	0903	0932	0961	0990	1019	1049	1078	1107	1136
4	1165	1194	1223	1252	1282	1311	1340	1369	1398	1427
5	1456	1485	1515	1544	1573	1602	1631	1660	1689	1718
6	1748	1777	1806	1835	1864	1893	1922	1951	1981	2010
7	2039	2068	2097	2126	2155	2184	2214	2243	2272	2301
8	2330	2359	2388	2417	2447	2476	2505	2534	2563	2592
9	2621	2650	2680	2709	2738	2767	2796	2825	2854	2884

When $a = 33{\cdot}3$, $A = 0$; and every *unit* of decrease in a represents an increase of ·029126213592 in A.

Annuities on 2 Joint Lives (Carlisle), 4, 5, and 6 per Cent.

Ages.		4 per Cent.	5 per Cent.	6 per Cent.
56	15	10·2523	9·4428	8·7371
	20	10·1732	9·3751	8·6789
	25	10·0474	9·2656	8·5830
	30	9·8944	9·1309	8·4637
	35	9·7590	9·0145	8·3628
	40	9·5487	8·8317	8·2025
	45	9·3534	8·6692	8·0666
	50	8·9758	8·3479	7·7918
	55	8·2928	7·7472	7·2608
	56	8·1278	7·6004	7·1297
57	0	7·2402	6·6938	6·2163
	5	9·8795	9·1096	8·4373
	10	10·0627	9·2812	8·5985
	15	9·9535	9·1847	8·5125
	20	9·8795	9·1212	8·4577
	25	9·7607	9·0174	8·3666
	30	9·6157	8·8893	8·2527
	35	9·4890	8·7799	8·1575
	40	9·2919	8·6077	8·0059
	45	9·1129	8·4583	7·8805
	50	8·7598	8·1570	7·6223
	55	8·1098	7·5840	7·1146
	57	7·7835	7·2926	6·8530
58	0	7·0262	6·5082	6·0541
	5	9·5784	8·8487	8·2095
	10	9·7578	9·0168	8·3675
	15	9·6543	8·9250	8·2855
	20	9·5852	8·8655	8·2340
	25	9·4731	8·7673	8·1476
	30	9·3358	8·6456	8·0389
	35	9·2173	8·5428	7·9492
	40	9·0326	8·3807	7·8059
	45	8·8691	8·2438	7·6906
	50	8·5398	7·9621	7·4485
	55	7·9221	7·4162	6·9638
	58	7·4441	6·9875	6·5776
59	0	6·8216	6·3305	5·8986
	5	9·2911	8·5993	7·9916
	10	9·4666	8·7640	8·1464
	15	9·3686	8·6766	8·0682
	20	9·3041	8·6210	8·0199
	25	9·1983	8·5281	7·9378
	30	9·0682	8·4123	7·8341
	35	8·9573	8·3157	7·7495
	40	8·7840	8·1629	7·6138
	45	8·6350	8·0377	7·5081
	50	8·3283	7·7746	7·2815
	55	7·7414	7·2547	6·8187
	59	7·1307	6·7055	6·3224
60	0	6·6318	6·1657	5·7547
	5	9·0243	8·3681	7·7898

Ages.		4 per Cent.	5 per Cent.	6 per Cent.
60	10	9·1964	8·5295	7·9417
	15	9·1033	8·4464	7·8669
	20	9·0432	8·3943	7·8216
	25	8·9433	8·3063	7·7436
	30	8·8198	8·1960	7·6446
	35	8·7159	8·1051	7·5647
	40	8·5530	7·9608	7·4360
	45	8·4173	7·8464	7·3391
	50	8·1320	7·6011	7·1272
	55	7·5742	7·1056	6·6852
	60	6·8538	6·4564	6·0975
61	0	6·4653	6·0222	5·6302
	5	8·7892	8·1655	7·6142
	10	8·9583	8·3242	7·7636
	15	8·8697	8·2448	7·6921
	20	8·8137	8·1962	7·6495
	25	8·7191	8·1126	7·5753
	30	8·6016	8·0073	7·4805
	35	8·5041	7·9216	7·4048
	40	8·3504	7·7849	7·2824
	45	8·2269	7·6804	7·1936
	50	7·9616	7·4517	6·9956
	55	7·4306	6·9789	6·5727
	60	6·7394	6·3545	6·0063
	61	6·6304	6·2572	5·9190
62	0	6·3013	5·8805	5·5072
	5	8·5571	7·9651	7·4402
	10	8·7231	8·1211	7·5873
	15	8·6388	8·0453	7·5188
	20	8·5868	7·9999	7·4790
	25	8·4974	7·9206	7·4084
	30	8·3858	7·8204	7·3178
	35	8·2943	7·7397	7·2463
	40	8·1493	7·6101	7·1298
	45	8·0372	7·5150	7·0486
	50	7·7914	7·3025	6·8642
	55	7·2870	6·8521	6·4604
	60	6·6247	6·2525	5·9152
	62	6·4170	6·0667	5·7485
63	0	6·1344	5·7359	5·3811
	5	8·3206	7·7600	7·2616
	10	8·4834	7·9132	7·4061
	15	8·4033	7·8410	7·3405
	20	8·3551	7·7988	7·3034
	25	8·2710	7·7239	7·2366
	30	8·1650	7·6284	7·1502
	35	8·0794	7·5526	7·0826
	40	7·9427	7·4299	6·9719
	45	7·8414	7·3437	6·8980
	50	7·6146	7·1471	6·7270
	55	7·1369	6·7194	6·3427
	60	6·5038	6·1448	5·8189

Conversion Table for deducing Assurances from Annuities.

4 per Cent.

Yrs.	·0.	·1.	·2.	·3.	·4.	·5.	·6.	·7.	·8.	·9.
0	·961538	·957692	·953846	·950000	·946154	·942308	·938462	·934615	·930769	·926923
1	·923077	·919231	·915385	·911538	·907692	·903846	·900000	·896154	·892308	·888462
2	·884615	·880769	·876923	·873077	·869231	·865385	·861538	·857692	·853846	·850000
3	·846154	·842308	·838462	·834615	·830769	·826923	·823077	·819231	·815385	·811538
4	·807692	·803846	·800000	·796154	·792308	·788462	·784615	·780769	·776923	·773077
5	·769231	·765385	·761538	·757692	·753846	·750000	·746154	·742308	·738462	·734615
6	·730769	·726923	·723077	·719231	·715385	·711538	·707692	·703846	·700000	·696154
7	·692308	·688462	·684615	·680769	·676923	·673077	·669231	·665385	·661538	·657692
8	·653846	·650000	·646154	·642308	·638462	·634615	·630769	·626923	·623077	·619231
9	·615385	·611538	·607692	·603846	·600000	·596154	·592308	·588462	·584615	·580769
10	·576923	·573077	·569231	·565385	·561538	·557692	·553846	·550000	·546154	·542308
11	·538462	·534615	·530769	·526923	·523077	·519231	·515385	·511538	·507692	·503846
12	·500000	·496154	·492308	·488462	·484615	·480769	·476923	·473077	·469231	·465385
13	·461538	·457692	·453846	·450000	·446154	·442308	·438462	·434615	·430769	·426923
14	·423077	·419231	·415385	·411538	·407692	·403846	·400000	·396154	·392308	·388462
15	·384615	·380769	·376923	·373077	·369231	·365385	·361538	·357692	·353846	·350000
16	·346154	·342308	·338462	·334615	·330769	·326923	·323077	·319231	·315385	·311538
17	·307692	·303846	·300000	·296154	·292308	·288462	·284615	·280769	·276923	·273077
18	·269231	·265385	·261538	·257692	·253846	·250000	·246154	·242308	·238462	·234615
19	·230769	·226923	·223077	·219231	·215385	·211538	·207692	·203846	·200000	·196154
20	·192308	·188462	·184615	·180769	·176923	·173077	·169231	·165385	·161538	·157692
21	·153846	·150000	·146154	·142308	·138462	·134615	·130769	·126923	·123077	·119231
22	·115385	·111538	·107692	·103846	·100000	·096154	·092308	·088462	·084615	·080769
23	·076923	·073077	·069231	·065385	.061538	·057692	·053846	·050000	·046154	·042308
24	·038462	·034615	·030769	·026923	·023077	·019231	·015385	·011538	·007692	·003846

Proportional deduction for 2nd and 3rd decimal figures.

	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
0	0000	0038	0077	0115	0154	0192	0231	0269	0308	0346
1	0385	0423	0462	0500	0538	0577	0615	0654	0692	0731
2	0769	0808	0846	0885	0923	0962	1000	1038	1077	1115
3	1154	1192	1231	1269	1308	1346	1385	1423	1462	1500
4	1538	1577	1615	1654	1692	1731	1769	1808	1846	1885
5	1923	1962	2000	2038	2077	2115	2154	2192	2231	2269
6	2308	2346	2385	2423	2462	2500	2538	2577	2615	2654
7	2692	2731	2769	2808	2846	2885	2923	2962	3000	3038
8	3077	3115	3154	3192	3231	3269	3308	3346	3385	3423
9	3462	3500	3538	3577	3615	3654	3692	3731	3769	3808

When $a=25$, $A=0$; a decrease of *unity* in a is an increase of $\cdot 03\dot{8}4615\dot{3}$ in A.

Conversion Table for deducing Assurances from Annuities.

5 per Cent.

Yrs.	·0.	·1.	·2.	·3.	·4.	·5.	·6.	·7.	·8.	·9.
0	·952381	·947619	·942857	·938095	·933333	·928571	·923810	·919048	·914286	·909524
1	·904762	·900000	·895238	·890476	·885714	·880952	·876190	·871429	·866667	·861905
2	·857143	·852381	·847619	·842857	·838095	·833333	·828571	·823810	·819048	·814286
3	·809524	·804762	·800000	·795238	·790476	·785714	·780952	·776190	·771429	·766667
4	·761905	·757143	·752381	·747619	·742857	·738095	·733333	·728571	·723810	·719048
5	·714286	·709524	·704762	·700000	·695238	·690476	·685714	·680952	·676190	·671429
6	·666667	·661905	·657143	·652381	·647619	·642857	·638095	·633333	·628571	·623810
7	·619048	·614286	·609524	·604762	·600000	·595238	·590476	·585714	·580952	·576190
8	·571429	·566667	·561905	·557143	·552381	·547619	·542857	·538095	·533333	·528571
9	·523810	·519048	·514286	·509524	·504762	·500000	·495238	·490476	·485714	·480952
10	·476190	·471429	·466667	·461905	·457143	·452381	·447619	·442857	·438095	·433333
11	·428571	·423810	·419048	·414286	·409524	·404762	·400000	·395238	·390476	·385714
12	·380952	·376190	·371429	·366667	·361905	·357143	·352381	·347619	·342857	·338095
13	·333333	·328571	·323810	·319048	·314286	·309524	·304762	·300000	·295238	·290476
14	·285714	·280952	·276190	·271429	·266667	·261905	·257143	·252381	·247619	·242857
15	·238095	·233333	·228571	·223810	·219048	·214286	·209524	·204762	·200000	·195238
16	·190476	·185714	·180952	·176190	·171429	·166667	·161905	·157143	·152381	·147619
17	·142857	·138095	·133333	·128571	·123810	·119048	·114286	·109524	·104762	·100000
18	·095238	·090476	·085714	·080952	·076190	·071429	·066667	·061905	·057143	·052381
19	·047619	·042857	·038095	·033333	·028571	·023810	·019048	·014286	·009524	·004762
20	·000000									

Proportional deduction for 2nd and 3rd decimal figures.

	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
0	0000	0048	0095	0143	0190	0238	0286	0333	0381	0429
1	0476	0524	0571	0619	0667	0714	0762	0810	0857	0905
2	0952	1000	1048	1095	1143	1190	1238	1286	1333	1381
3	1429	1476	1524	1571	1619	1667	1714	1762	1810	1857
4	1905	1952	2000	2048	2095	2143	2190	2238	2286	2333
5	2381	2429	2476	2524	2571	2619	2667	2714	2762	2810
6	2857	2905	2952	3000	3048	3095	3143	3190	3238	3286
7	3333	3381	3429	3476	3524	3571	3619	3667	3714	3762
8	3810	3857	3905	3952	4000	4048	4095	4143	4190	4238
9	4286	4333	4381	4429	4476	4524	4571	4619	4667	4714

When $a=20$, $A=0$; a decrease of *unity* in a is an increase of $\cdot 0476\dot{1}\dot{9}$ in A.

Conversion Table for deducing Assurances from Annuities.

6 per Cent.

Yrs.	·0.	·1.	·2.	·3.	·4.	·5.	·6.	·7.	·8.	·9.
0	·943396	·937736	·932075	·926415	·920755	·915094	·909434	·903774	·898113	·892453
1	·886792	·881132	·875472	·869811	·864151	·858491	·852830	·847170	·841509	·835849
2	·830189	·824528	·818868	·813208	·807547	·801887	·796226	·790566	·784906	·779245
3	·773585	·767925	·762264	·756604	·750943	·745283	·739623	·733962	·728302	·722642
4	·716981	·711321	·705660	·700000	·694340	·688679	·683019	·677358	·671698	·666038
5	·660377	·654717	·649057	·643396	·637736	·632075	·626415	·620755	·615094	·609434
6	·603774	·598113	·592453	·586792	·581132	·575472	·569811	·564151	·558491	·552830
7	·547170	·541509	·535849	·530189	·524528	·518868	·513208	·507547	·501887	·496226
8	·490566	·484906	·479245	·473585	·467925	·462264	·456604	·450943	·445283	·439623
9	·433962	·428302	·422642	·416981	·411321	·405660	·400000	·394340	·388679	·383019
10	·377358	·371698	·366038	·360377	·354717	·349057	·343396	·337736	·332075	·326415
11	·320755	·315094	·309434	·303774	·298113	·292453	·286792	·281132	·275472	·269811
12	·264151	·258491	·252830	·247170	·241509	·235849	·230189	·224528	·218868	·213208
13	·207547	·201887	·196226	·190566	·184906	·179245	·173585	·167925	·162264	·156604
14	·150943	·145283	·139623	·133962	·128302	·122642	·116981	·111321	·105660	·100000
15	·094340	·088679	·083019	·077358	·071698	·066038	·060377	·054717	.049057	·043396
16	·037736	·032075	·026415	·020755	·015094	·009434	·003774			

Proportional deduction for 2nd and 3rd decimal figures.

	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
0	0000	0057	0113	0170	0226	0283	0340	0396	0453	0509
1	0566	0623	0679	0736	0792	0849	0906	0962	1019	1075
2	1132	1189	1245	1302	1358	1415	1472	1528	1585	1642
3	1698	1755	1811	1868	1925	1981	2038	2094	2151	2208
4	2264	2321	2377	2434	2491	2547	2604	2660	2717	2774
5	2830	2887	2943	3000	3057	3113	3170	3226	3283	3340
6	3396	3453	3509	3566	3623	3679	3736	3792	3849	3906
7	3962	4019	4075	4132	4189	4245	4302	4358	4415	4472
8	4528	4585	4652	4698	4755	4811	4868	4925	4981	5038
9	5094	5151	5208	5264	5321	5377	5434	5491	5547	5604

When a is $16\dot{6}$, A is 0; a decrease of *unity* in a increases A by $\dot{0}566037735849\dot{0}$.

Conversion Tables for deducing Assurances from Annuities.

7 per Cent.

Yrs.	·0.	·1.	·2.	·3·	·4.	·5.	·6.	·7.	·8.	·9.
0	·934579	·928037	·921495	·914953	·908411	·901869	·895327	·888785	·882243	·875701
1	·869159	·862617	·856075	·849533	·842991	·836449	·829907	·823364	·816822	·810280
2	·803738	·797196	·790654	·784112	·777570	·771028	·764486	·757944	·751402	·744860
3	·738318	·731776	·725234	·718692	·712150	·705607	·699065	·692523	·685981	·679439
4	·672897	·666355	·659813	·653271	·646729	·640187	·633645	·627103	·620561	·614019
5	·607477	·600935	·594393	·587850	·581308	·574766	·568224	·561682	·555140	·548598
6	·542056	·535514	·528972	·522430	·515888	·509346	·502804	·496262	·489720	·483178
7	·476636	·470093	·463551	·457009	·450467	·443925	·437383	·430841	·424299	·417757
8	·411215	·404673	·398131	·391589	·385047	·378505	·371963	·365421	·358879	·352336
9	·345794	·339252	·332710	·326168	·319626	·313084	·306542	·300000	·293458	·286916
10	·280374	·273832	·267290	·260748	·254206	·247664	·241122	·234579	·228037	·221495
11	·214953	·208411	·201869	·195327	·188785	·182243	·175701	·169159	·162617	·156075
12	·149533	·142991	·136449	·129907	·123364	·116822	·110280	·103738	·097196	·090654
13	·084112	·077570	·071028	·064486	·057944	·051402	·044860	·038318	·031776	·025234
14	·018692	·012150	·005607							

Proportional deduction for 2nd and 3rd decimal figures.

	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.		0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
0	0000	0065	0131	0196	0262	0327	0393	0458	0523	0589	5	3271	3336	3402	3467	3533	3598	3664	3729	3794	3860
1	0654	0720	0785	0850	0916	0981	1047	1112	1178	1243	6	3925	3991	4056	4121	4187	4252	4318	4383	4449	4514
2	1308	1374	1439	1505	1570	1636	1701	1766	1832	1897	7	4579	4645	4710	4776	4841	4907	4972	5037	5103	5168
3	1963	2028	2093	2159	2224	2290	2355	2421	2486	2551	8	5234	5299	5364	5430	5495	5561	5626	5692	5757	5822
4	2617	2682	2748	2813	2879	2944	3009	3075	3140	3206	9	5888	5953	6019	6084	6150	6215	6280	6346	6411	6477

When a is $14\cdot2857\dot{1}\dot{4}$, A is 0; a decrease of *unity* in a is an increase of ·065420560748 in A.

8 per Cent.

Yrs.	·0.	·1.	·2.	·3.	·4.	·5·	·6.	·7.	·8.	·9.
0	·925926	·918519	·911111	·903704	·896296	·888889	·881481	·874074	·866667	·859259
1	·851852	·844444	·837037	·829630	·822222	·814815	·807407	·800000	·792593	·785185
2	·777778	·770370	·762963	·755556	·748148	·740741	·733333	·725926	·718519	·711111
3	·703704	·696296	·688889	·681481	·674074	·666667	·659259	·651852	·644444	·637037
4	·629630	·622222	·614815	·607407	·600000	·592593	·585185	·577778	·570370	·562963
5	·555556	·548148	·540741	·533333	·525926	·518519	·511111	·503704	·496296	·488889
6	·481481	·474074	·466667	·459259	·451852	·444444	·437037	·429630	·422222	·414815
7	·407407	·400000	·392593	·385185	·377778	·370370	·362963	·355556	·348148	·340741
8	·333333	·325926	·318519	·311111	·303704	·296296	·288889	·281481	·274074	·266667
9	·259259	·251852	·244444	·237037	·229630	·222222	·214815	·207407	·200000	·192593
10	·185185	·177778	·170370	·162963	·155556	·148148	·140741	·133333	·125926	·118519
11	·111111	·103704	·096296	·088889	·081481	·074074	·066667	·059259	·051852	·044444
12	·037037	·029630	·022222	·014815	·007407					

Proportional deduction for 2nd and 3rd decimal figures.

	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.		0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
0	0000	0074	0148	0222	0296	0370	0444	0519	0593	0667	5	3704	3778	3852	3926	4000	4074	4148	4222	4296	437
1	0741	0815	0889	0963	1037	1111	1185	1259	1333	1407	6	4444	4519	4593	4667	4741	4815	4889	4963	5037	511
2	1481	1556	1630	1704	1778	1852	1926	2000	2074	2148	7	5185	5259	5333	5407	5481	5556	5630	5704	5778	585
3	2222	2296	2370	2444	2519	2593	2667	2741	2815	2889	8	5926	6000	6074	6148	6222	6296	6370	6444	6519	659
4	2963	3037	3111	3185	3259	3333	3407	3481	3556	3630	9	6667	6741	6815	6889	6963	7037	7111	7185	7259	733

When $a = 12\cdot5$, $A = 0$; a decrease of *unity* in a increases A by $\cdot07\dot{4}0\dot{7}\dot{4}$.

Conversion Tables for deducing Assurances from Annuities.

9 per Cent.

Yrs.	·0.	·1.	·2.	·3.	·4.	·5.	·6.	·7.	·8.	·9.
0	·917431	·909174	·900917	·892661	·884404	·876147	·867890	·859633	·851376	·843119
1	·834862	·826606	·818349	·810092	·801835	·793578	·785321	·777064	·768807	·760550
2	·752294	·744037	·735780	·727523	·719266	·711009	·702752	·694495	·686239	·677982
3	·669725	·661468	·653211	·644954	·636697	·628440	·620183	·611927	·603670	·595413
4	·587156	·578899	·570642	·562385	·554128	·545872	·537615	·529358	·521101	·512844
5	·504587	·496330	·488073	·479817	·471560	·463303	·455046	·446789	·438532	·430275
6	·422018	·413761	·405505	·397248	·388991	·380734	·372477	·364220	·355963	·347706
7	·339450	·331193	·322936	·314679	·306422	·298165	·289908	·281651	·273394	·265138
8	·256881	·248624	·240367	·232110	·223853	·215596	·207339	·199083	·190826	·182569
9	·174312	·166055	·157798	·149541	·141284	·133028	·124771	·116514	·108257	·100000
10	·091743	·083486	·075229	·066972	·058716	·050459	·042202	·033945	·025688	·017431
11	·009174	·000917								

Proportional deduction for 2nd and 3rd decimal figures.

	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.		0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
0	0000	0083	0165	0248	0330	0413	0495	0578	0661	0743	5	4128	4211	4294	4376	4459	4541	4624	4706	4789	4872
1	0826	0908	0991	1073	1156	1239	1321	1404	1486	1569	6	4954	5037	5119	5202	5284	5367	5450	5532	5615	5697
2	1651	1734	1817	1899	1982	2064	2147	2229	2312	2394	7	5780	5862	5945	6028	6110	6193	6275	6358	6440	6523
3	2477	2560	2642	2725	2807	2890	2972	3055	3138	3220	8	6606	6688	6771	6853	6936	7018	7101	7183	7266	7349
4	3303	3385	3468	3550	3633	3716	3798	3881	3963	4046	9	7431	7514	7596	7679	7761	7844	7927	8009	8092	8174

When a is $11\dot{1}$, A is 0; a decrease of *unity* in a increases A by ·0825688073394.

10 per Cent.

Yrs.	·0.	·1.	·2.	·3.	·4.	·5.	·6.	·7.	·8.	·9.
0	·909091	·900000	·890909	·881818	·872727	·863636	·854545	·845455	·836364	·827273
1	·818182	·809091	·800000	·790909	·781818	·772727	·763636	·754545	·745455	·736364
2	·727273	·718182	·709091	·700000	·690909	·681818	·672727	·663636	·654545	·645455
3	·636364	·627273	·618182	·609091	·600000	·590909	·581818	·572727	·563636	·554545
4	·545455	·536364	·527273	·518182	·509091	·500000	·490909	·481818	·472727	·463636
5	·454545	·445455	·436364	·427273	.418182	·409091	·400000	·390909	·381818	·372727
6	·363636	·354545	·345455	·336364	·327273	·318182	·309091	·300000	·290909	·281818
7	·272727	·263636	·254545	·245455	·236364	·227273	·218182	·209091	·200000	·190909
8	·181818	·172727	·163636	·154545	·145455	·136364	·127273	·118182	·109091	·100000
9	·090909	·081818	·072727	·063636	·054545	·045455	·036364	·027273	·018182	·009091

Proportional deduction for 2nd and 3rd decimal figures.

	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.		0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
0	0000	0091	0182	0273	0364	0455	0545	0636	0727	0818	5	4545	4636	4727	4818	4909	5000	5091	5182	5273	5364
1	0909	1000	1091	1182	1273	1364	1455	1545	1636	1727	6	5455	5545	5636	5727	5818	5909	6000	6091	6182	6273
2	1818	1909	2000	2091	2182	2273	2364	2455	2545	2636	7	6364	6455	6545	6636	6727	6818	6909	7000	7091	7182
3	2727	2818	2909	3000	3091	3182	3273	3364	3455	3545	8	7273	7364	7455	7545	7636	7727	7818	7909	8000	8091
4	3636	3727	3818	3909	4000	4091	4182	4273	4364	4455	9	8182	8273	8364	8455	8545	8636	8727	8818	8909	9000

When a is 10, A is 0; a decrease of *unity* in a increases A by $\cdot 090\dot{9}$.

SINGLE PREMIUM FOR, OR PRESENT VALUE OF, £1 PAYABLE AT THE END OF THE YEAR IN WHICH A LIFE DROPS (CARLISLE DATA).

Age.	3 per Cent.	4.	5.	6.	8.	10.
0	·4664130	·4122445	·3769989	·3524692	·3200626	·2985216
1	·3858946	·3248248	·2859578	·2596825	·2266487	·2062096
2	·3446463	·2797630	·2389078	·2117242	·1785694	·1590450
3	·3102055	·2417277	·1988433	·1705833	·1368184	·1176704
4	·2926734	·2218721	·1775801	·1485100	·1141522	·0951021
5	·2807963	·2079986	·1624013	·1325039	·0973580	·0781345
6	·2763374	·2021146	·1554874	·1248752	·0889279	·0693573
7	·2757315	·2003777	·1528564	·1215783	·0848007	·0648327
8	·2776498	·2013681	·1530496	·1211426	·0835237	·0636105
9	·2812506	·2041872	·1551437	·1226390	·0841807	·0632193
10	·2860597	·2083311	·1586247	·1255531	·0862711	·0647881
11	·2914607	·2131320	·1627976	·1291770	·0890833	·0670787
12	·2968148	·2178872	·1669217	·1327471	·0918325	·0693007
13	·3022303	·2227162	·1711234	·1363938	·0946523	·0715883
14	·3077096	·2276224	·1754065	·1401215	·0974479	·0739483
15	·3131464	·2324869	·1796444	·1437984	·1001915	·0762395
16	·3183209	·2370634	·1835725	·1471467	·1028581	·0781867
17	·3233312	·2414574	·1872994	·1502754	·1050839	·0797997
18	·3283874	·2459016	·1910712	·1534386	·1073179	·0814283
19	·3335994	·2505195	·1950201	·1567740	·1087049	·0831883
20	·3389726	·2553192	·1991563	·1602931	·1122571	·0850923
21	·3445135	·2603091	·2034901	·1640079	·1150887	·0871561
22	·3503368	·2656208	·2081649	·1680702	·1180619	·0895483
23	·3563451	·2711479	·2130691	·1723657	·1213613	·0921533
24	·3625452	·2769006	·2182162	·1769102	·1249069	·0949735
25	·3689454	·2828899	·2236198	·1817205	·1287192	·0980732
26	·3754457	·2890052	·2291627	·1866749	·1326730	·1013073
27	·3821568	·2953738	·2349843	·1919215	·1369275	·1048423
28	·3888743	·3017648	·2408363	·1972005	·1412107	·1084009
29	·3952803	·3078144	·2463221	·2020919	·1450707	·1115120
30	·4012541	·3133788	·2512798	·2064180	·1483060	·1139554
31	·4073039	·3190343	·2563306	·2108303	·1515992	·1164240
32	·4135377	·3249057	·2616112	·2154733	·1551042	·1190757
33	·4200688	·3311261	·2672691	·2205053	·1589929	·1220902
34	·4269108	·3377143	·2733286	·2259555	·1633025	·1255108
35	·4339711	·3445682	·2796815	·2317123	·1679182	·1292207
36	·4412589	·3517011	·2863453	·2377967	·1728679	·1332505
37	·4486792	·3590053	·2932045	·2440881	·1780235	·1374802
38	·4562369	·3664888	·3002691	·2505987	·1834012	·1419067
39	·4639380	·3741595	·3075501	·2573415	·1890176	·1465672
40	·4715802	·3817835	·3147894	·2640410	·1945727	·1521422
41	·4789513	·3891102	·3217076	·2703951	·1997308	·1552710
42	·4862427	·3963595	·3285436	·2766545	·2047549	·1592160
43	·4935510	·4036425	·3354192	·2829480	·2097778	·1631096
44	·5010825	·4112025	·3426039	·2895652	·2151146	·1672776
45	·5088467	·4190539	·3501173	·2965293	·2207931	·1717490
46	·5169591	·4273356	·3581178	·3040146	·2274097	·1767324
47	·5254366	·4360736	·3666396	·3120627	·2338186	·1822904
48	·5344005	·4454178	·3758569	·3208689	·2414460	·1886709
49	·5440790	·4556490	·3860951	·3307956	·2503154	·1963392
50	·5543026	·4665761	·3971507	·3416348	·2602184	·2050966
51	·5650965	·4782380	·4090794	·3534574	·2712569	·2150736
52	·5759891	·4900794	·4212617	·3655978	·2827059	·2255117

SINGLE PREMIUM FOR, OR PRESENT VALUE OF, £1 PAYABLE AT THE END OF THE YEAR IN WHICH A LIFE DROPS (CARLISLE DATA).

Age.	3 per Cent.	4.	5.	6.	8.	10.
53	·5869908	·5021146	·4337168	·3780798	·2945996	·2364559
54	·5981106	·5143566	·4464637	·3909292	·3069766	·2479579
55	·6094552	·5269381	·4596572	·4043204	·3200463	·2602548
56	·6209451	·5397669	·4731983	·4181512	·3337081	·2732548
57	·6325926	·5528618	·4871134	·4324569	·3480171	·2870355
58	·6441339	·5659050	·5010423	·4468450	·3625374	·3011332
59	·6551098	·5783345	·5143387	·4605989	·3764466	·3146568
60	·6652993	·5898719	·5266725	·4733439	·3892948	·3270966
61	·6743528	·6000734	·5375182	·4844804	·4003570	·3376243
62	·6832485	·6101247	·5482272	·4954953	·4113197	·3480567
63	·6922332	·6203270	·5591473	·5067746	·4226266	·3588794
64	·7015856	·6310270	·5706834	·5187744	·4348190	·3706965
65	·7111452	·6420314	·5826180	·5312585	·4476365	·3832371
66	·7210172	·6534746	·5951134	·5444155	·4613144	·3967761
67	·7312242	·6653925	·6082174	·5583078	·4759464	·4114388
68	·7416952	·6777018	·6218426	·5728455	·4914485	·4271555
69	·7524470	·6904303	·6360283	·5880825	·5079064	·4440465
70	·7634010	·7034862	·6506744	·6039164	·5252231	·4620323
71	·7746662	·7170102	·6659568	·6205549	·5436738	·4814551
72	·7852690	·7297890	·6804490	·6363901	·5613538	·5001870
73	·7948507	·7413598	·6935966	·6507817	·5774758	·5172914
74	·8033330	·7516107	·7052515	·6635456	·5917857	·5325366
75	·8103310	·7600382	·7147980	·6739595	·6033643	·5447402
76	·8171776	·7687079	·7241920	·6842345	·6148417	·5568869
77	·8235206	·7759720	·7328980	·6937546	·6254638	·5681031
78	·8299582	·7837824	·7418043	·7035295	·6364430	·5797669
79	·8371338	·7925596	·7518960	·7146940	·6491821	·5935088
80	·8437460	·8006582	·7612165	·7250150	·6609730	·6062344
81	·8509110	·8094962	·7714594	·7364342	·6741933	·6206876
82	·8573500	·8174486	·7806850	·7467304	·6861294	·6337477
83	·8639268	·8256120	·7902035	·7574030	·6986184	·6475342
84	·8702706	·8335168	·7994547	·7678145	·7108856	·6611630
85	·8768188	·8417252	·8091174	·7787510	·7239171	·6757993
86	·8825332	·8489112	·8176022	·7883837	·7354620	·6888385
87	·8871838	·8547718	·8245372	·7962739	·7449586	·6996090
88	·8900200	·8583318	·8287332	·8010297	·7506423	·7060159
89	·8932556	·8624214	·8335879	·8065704	·7573490	·7136563
90	·8980958	·8686072	·8410098	·8151314	·7679340	·7259787
91	·8986238	·8692944	·8418529	·8161290	·7692412	·7275986
92	·8958152	·8656924	·8375240	·8111354	·7630930	·7204916
93	·8926250	·8615562	·8325006	·8052832	·7557504	·7118769
94	·8911950	·8596246	·8300694	·8023602	·7518831	·7071370
95	·8905742	·8586794	·8287636	·8006692	·7493766	·7042731
96	·8921204	·8604700	·8306986	·8026654	·7512564	·7054535
97	·8963510	·8656906	·8367430	·8093872	·7590111	·7137764
98	·9013106	·8718378	·8438888	·8173652	·7682274	·7237693
99	·9088088	·8812690	·8550154	·8299720	·7834005	·7405498
100	·9218672	·8979686	·8750474	·8530506	·8116504	·7734058
101	·9351012	·9149982	·8956004	·8768722	·8413193	·8081025
102	·9484160	·9322370	·9165326	·9012816	·8720745	·8444778
103	·9614477	·9492109	·9372646	·9255964	·9030635	·8815427
104	·9708738	·9615385	·9523809	·9433962	·9213676	·8993390